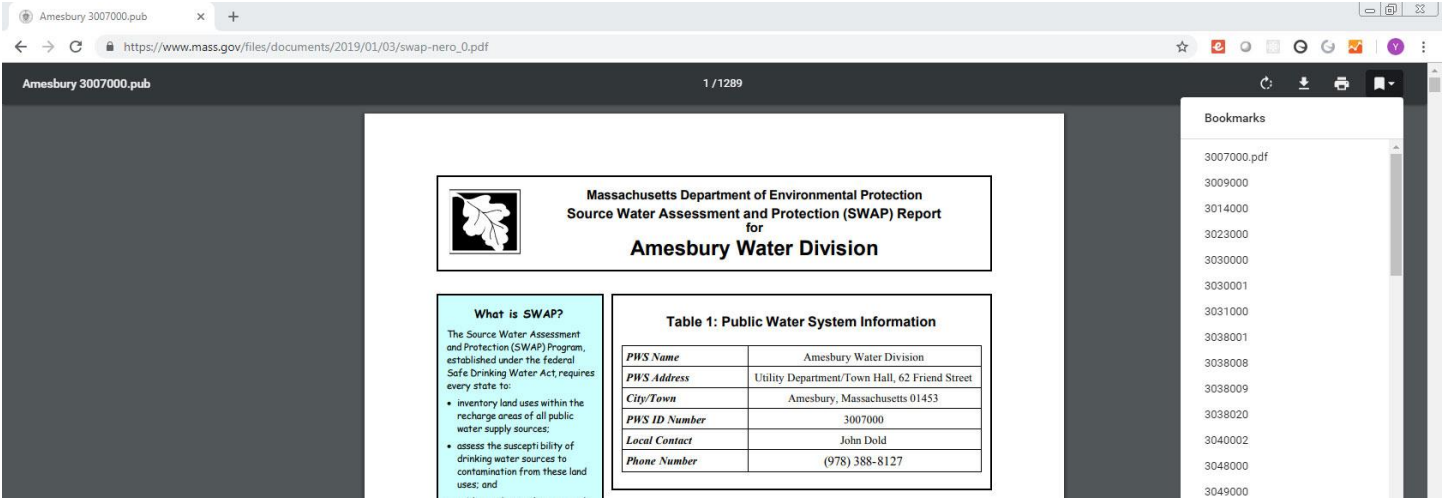


HOW TO USE THIS PDF FILE

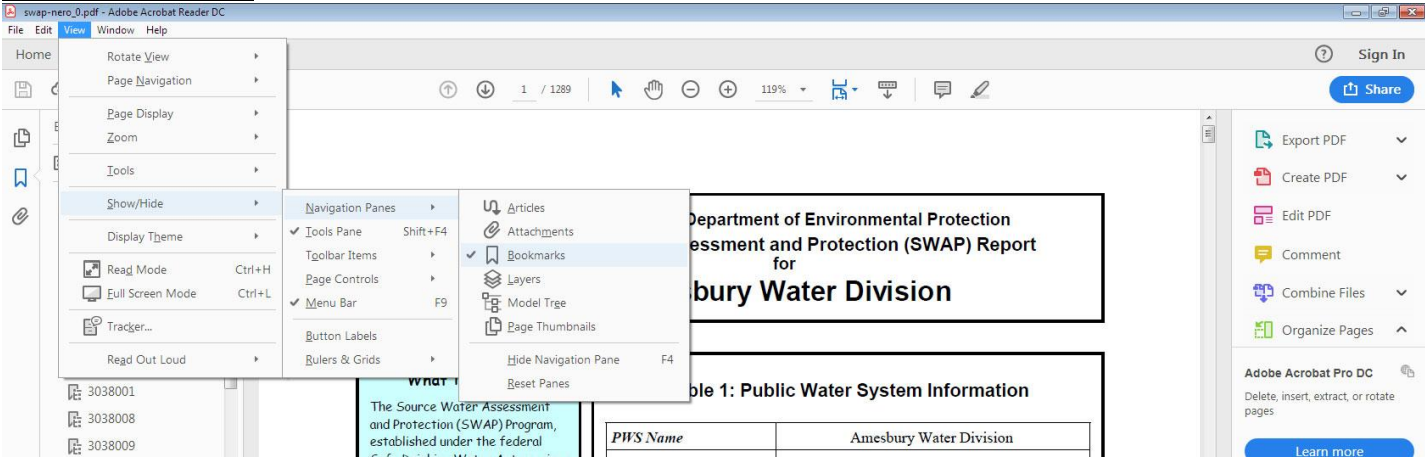
This PDF SWAP report file contains bookmarks which can be used to locate a particular SWAP report (see screenshots below for common PDF programs). The bookmarks are named using the PWS ID # of the public water system.

If you do not know the PWS ID #, you can also perform a search of the document by holding down the “CTRL” (⌘ on Mac) and the “F” key. This will open up the Find functionality. Type the name of the PWS into the textfield provided.

Chrome Web Browser



Acrobat Reader DC



Adobe Acrobat 9 Pro

The screenshot shows the Adobe Acrobat 9 Pro interface. The 'View' menu is open, displaying options such as 'Go To', 'Zoom', 'Page Display', 'Rotate View', 'Reading Mode', 'Full Screen Mode', 'Menu Bar', 'Toolbars', 'Navigation Panels', 'Grid', 'Snap to Grid', 'Rulers', 'Guides', 'Line Weights', 'Cursor Coordinates', 'Automatically Scroll', and 'Read Out Loud'. The 'Navigation Panels' sub-menu is also open, showing options like 'Articles', 'Attachments', 'Bookmarks', 'Comments', 'Content', 'Destinations', 'Layers', 'Model Tige', 'Order', 'Pages', 'Signatures', and 'Tags'. The main document content includes a title page for the 'Massachusetts Department of Environmental Protection Source Water Assessment and Protection (SWAP) Report for Amesbury Water Division' and a table titled 'Table 1: Public Water System Information'.

**Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Amesbury Water Division**

Table 1: Public Water System Information

<i>PWS Name</i>	Amesbury Water Division
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Nitro Pro 9

The screenshot shows the Nitro Pro 9 interface. The 'Bookmarks' sidebar is visible on the left, listing various pages. The main document content includes a title page for the 'Massachusetts Department of Environmental Protection Source Water Assessment and Protection (SWAP) Report for Wee Forest Folk' and a table titled 'Table 1: Public Water System (PWS) Information'.

**Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Wee Forest Folk**

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Wee Forest Folk
<i>PWS Address</i>	887 Bedford Road
<i>City/Town</i>	Carlisle, Massachusetts 01921
<i>PWS ID Number</i>	3051019



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Amesbury Water Division

What is SWAP?

The Source Water Assessment and Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Amesbury Water Division
<i>PWS Address</i>	Utility Department/Town Hall, 62 Friend Street
<i>City/Town</i>	Amesbury, Massachusetts 01453
<i>PWS ID Number</i>	3007000
<i>Local Contact</i>	John Dold
<i>Phone Number</i>	(978) 388-8127

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

Groundwater Sources

Zone II #: 435

Susceptibility: Moderate

Well Name	Source ID#
Well #1	3007000-02G
Well #2	3007000-03G

Surface Water Sources

Source Name	Susceptibility: High
Powwow River	3007000-01S
Lake Attitash	3007000-02S

Amesbury Water Division receives its water from the Powwow River, Lake Attitash, and two wells. The two wells for the Amesbury Water Division are located in the northwest corner of the town near the border with New Hampshire and are used mainly during peak water usage in the summer.

The surface water sources for the Amesbury Water Division are also located in the northwest corner of the town, with the Powwow River east of the wells and Lake Attitash west of the wells. Water from Lake Attitash is pumped in to the Powwow River. The watersheds extend in to South Hampton and Newton, NH. Please refer to the attached map of the watersheds.

The wells share a Zone II that extends into small portions of South Hampton, New Hampshire. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The system water is filtered, chlorinated for disinfection, fluoridated for dental health, and pH adjusted for corrosion control. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

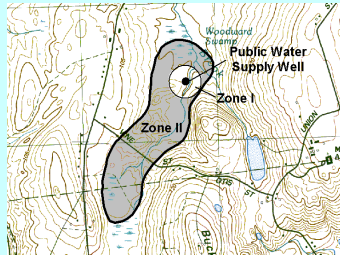
Amesbury's watershed lands and Zone II lands are primarily a mixture of forest, cropland, and residential land use, with smaller portions consisting of commercial land uses, sand and gravel mining, and other land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone A
2. Residential Land Uses
3. Transportation Corridors
4. Hazardous Materials Storage and Use
5. Agricultural activities
6. Oil or Hazardous Material Contamination Sites
7. Comprehensive Wellhead Protection Planning

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



The ranking of susceptibility to contamination for the Well #1 & Well #2 Zone II is moderate, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2. The ranking of susceptibility to contamination for the Powwow River and the Lake Attitash Zone C is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone As - Land use activities within the Amesbury's Zone As which, if managed improperly may have an impact on surface water sources include: an airport; homes with on-site septic systems; residential storage of heating oil; local roads; stormwater runoff; and a railroad. Wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.

Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.

- ✓ Keep any new prohibited activities out of the Zone A.

2. Residential Land Uses – Approximately 18% of the Massachusetts portion of Amesbury's combined Zone II and watershed lands consist of residential areas. Areas of the watershed lands in New Hampshire are also residential land uses. Some of the areas have public sewers, and some use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

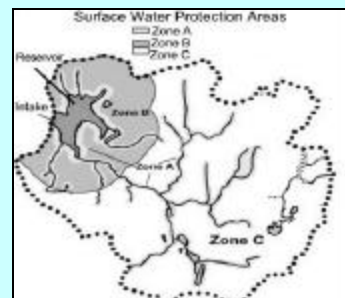
Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.

3. Transportation Corridors - State and local roads are common in the watersheds and Zone II. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include contaminants from automotive leaks, maintenance, washing, or accidents.

Railroad tracks run through the watershed. Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals.

Transportation Corridor Recommendations:

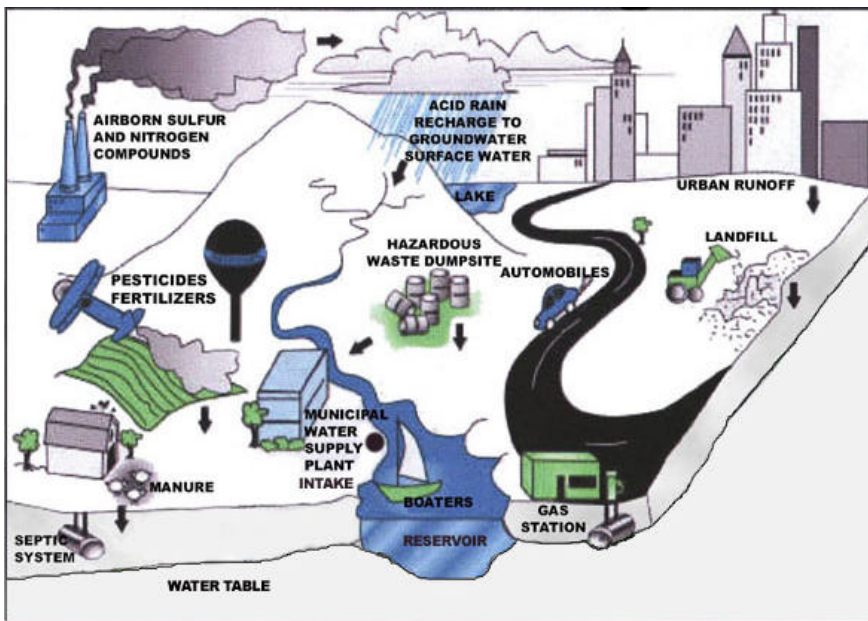
- ✓ Regularly inspect watersheds and Zone II for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Promote BMPs for stormwater management and pollution controls.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

What are "BMPs?"
 Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

4. Hazardous Materials Storage and Use – A small portion of the Zone II and watershed lands for Amesbury are commercial or industrial land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP's for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.



MODIFIED FROM © 2000 The Groundwater Foundation. Illustrated by C. Mansfield, The Groundwater Foundation

Figure 1: Sample watershed with examples of potential sources of contamination

- ✓ Educate local businesses on Massachusetts floordrain requirements. See brochure "Industrial Floor Drains" for more information.

5. Agricultural Activities – Approximately 10% of Amesbury's water supply protection areas within Massachusetts are cropland and pastureland, with other agricultural land uses. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Water Supply Protection Areas

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II Number	Watershed Source ID	Potential Contaminant Sources*
Agricultural					
Fertilizer Storage or Use	1	M	530	-	Leaks, spills, improper handling, or over-application of fertilizers
Nurseries	1	M	-	01S, 02S	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling, or over-application
Commercial					
Airports	1	M	-	01S, 02S	Fuels, de-icers, salt, and other hazardous chemicals: spills, leaks, or improper handling
Body Shops	2	H	-	01S, 02S	Improper management of vehicle paints, solvents, and primer products
Cemeteries	1	L	-	01S, 02S	Over-application of pesticides: leaks, spills, improper handling; historic embalming fluids
Golf Courses	1	M	-	01S, 02S	Over-application or improper handling of fertilizers or pesticides
Railroad Tracks and Yards	1	H	-	01S, 02S	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Sand And Gravel Mining/Washing	2	M	-	01S, 02S	Heavy equipment, fuel storage, clandestine dumping: spills or leaks
Industrial					
Fuel Oil Distributors	1	H	-	01S, 02S	Fuel oil: spills, leaks, or improper handling or storage
Residential					
Fuel Oil Storage (at residences)	Numerous	M	530	01S, 02S	Fuel oil: spills, leaks, or improper handling
Lawn Care / Gardening	Numerous	M	530	01S, 02S	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Numerous	M	530	01S, 02S	Hazardous chemicals: microbial contaminants, and improper disposal

Land Uses	Quantity	Threat*	Zone II Number	Watershed Source ID	Potential Contaminant Sources*
Miscellaneous					
Aboveground Storage Tanks	4	M	-	01S, 02S	Materials stored in tanks: spills, leaks, or improper handling
Composting Facilities	1	M	-	01S, 02S	Organic material, animal waste, and runoff: storage and improper handling
Fishing/Boating	Extensive	M	-	01S, 02S	Fuel and other chemical spills, microbial contaminants
Landfills and Dumps	1	H	-	01S, 02S	Seepage of leachate
NPDES Locations	1	L	-	01S	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	1	--	-	02S	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	-	01S, 02S	Deicing materials, automotive fluids, fuel storage, and other chemicals: spills, leaks, or improper handling or storage
Stormwater Drains/Retention Basins	Numerous/ 2	L	530	01S, 02S	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way: <u>electric</u>	1	L	530	01S, 02S	Construction and corridor maintenance, over-application or improper handling of herbicides
Underground Storage Tanks	3	M	-	01S, 02S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Water Treatment Sludge Lagoon	2	L	-	01S, 02S	Sludge and wastewater: improper management
Table Notes:					
<p>1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.</p> <p>2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.</p> <p>3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.</p> <ul style="list-style-type: none"> • THREAT RANKING - Where there are two rankings, the first is for surface water, the second for groundwater sources. The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater. 					

Agricultural Activities Recommendations:

- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ Encourage the farmers to incorporate an Integrated Pest Management (IPM) approach into their pest management program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote Best Management Practices (BMPs) for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Work with farmers and nurseries to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.

6. Presence of Oil or Hazardous Material Contamination Site – The Zone II contains a MADEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 30015208. Refer to the attached map and Appendix C for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known contamination site.

7. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir. Currently, the Town does not have water supply protection controls that have been approved as meeting DEP’s Wellhead Protection regulations 310 CMR 22.21(2) or Surface Water Protection regulations 310 CMR 22.20 (b) and (c). Wellhead Protection and Surface Water Supply Protection Plans coordinate community efforts,

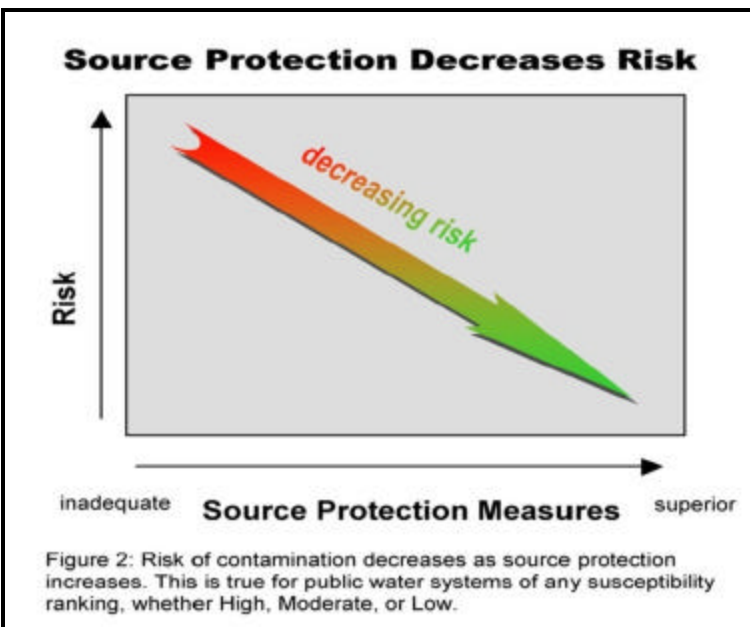
Top 5 Reasons to Develop a Local Wellhead and Surface Water Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop plans for protecting drinking water supply sources.

Protection Planning Recommendations:

- ✓ Develop and implement Surface Water Supply and Wellhead Protection Plans. Refer your protection team to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance on developing plans.



- ✓ If your local surface water supply protection controls do not meet the current regulations, coordinate efforts with local officials to adopt local water supply protection controls that meet current MA regulations 310 CMR 22.21(2) and 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floordrains, be sure to include floordrain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone II and watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Creating a source protection team to work with New Hampshire watershed towns.
- Applying for and receiving a grant to create a surface water supply protection plan, improve emergency planning, and foster greater cooperation with watershed areas in New Hampshire.
- Land acquisition within the watersheds for source protection.
- Restricting access to the treatment plant and other water supply facilities through fencing.
- Encouraging sewerage in watershed areas.
- Receiving a grant to eliminate direct discharge of stormdrains into Lake Attitash.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Inspect the Zone Is and As regularly, and when feasible, remove any non-water supply activities.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead and Surface Water Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with the watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow to the Zone II .
2. The groundwater in this area probably discharges to surface water feature such as a river rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I and Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and/or Zone A?	YES (Zone I for Well #1 & Well #2)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Powwow River & Lake Attitash)	To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements. Investigate options for gaining ownership or control of the Zone A.
Are the Zone I and Zone A posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone I and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply -related activities the only activities within the Zone I and Zone A?	YES (Zone I for Well #1 & Well #2)	Monitor for any non-water supply activities in Zone I and prohibited activities in Zone A, and investigate options for removing these activities.
	NO (Powwow River & Lake Attitash)	Monitor prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2) ?	NO	Continue working with the Planning Board and the Board of Selectmen to compare land use controls to see that they meet current requirements of 310 CMR 22.21(2) and 310 CMR 22.20C. Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Work with the communities of Merrimac, MA, and Newton and South Hampton, NH to encourage them to protect watershed and Zone II lands.
Planning		
Does the PWS have a local surface water and wellhead protection plan?	NO	Develop and implement a surface water supply and wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" and Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed and wellhead protection committee?	YES	Encourage committee to include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Floor drain inspection was conducted in conjunction with DEP. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	YES	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II and watershed.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watershed and Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier and town boards.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN AMESBURY WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
326139	CHALLENGE ENGINEERING, INC	271 LIONS MOUTH ROAD	AMESBURY	HANDLER	VERY SMALL QUANTITY GENERATOR
208033	BROX INDUSTRIES, INC.	10 NORTH STREET	MERRIMAC	TURA REPORTER	BELOW TOXICS USE REDUCTION REGULATION LEVELS

UNDERGROUND STORAGE TANKS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
BROX INDUSTRIES, INC.	10 NORTH STREET	MERRIMAC	INDUSTRIAL	10000	FUEL OIL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Amesbury Water Supply Protection Areas

DEP's datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP's Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP's Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state's OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0015208	72 East Main Street	Merrimac	Oil and Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).

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For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Andover Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Andover Water Department
<i>PWS Address</i>	397 Lowell Street
<i>City/Town</i>	Andover, Massachusetts 01810-4416
<i>PWS ID Number</i>	3009000
<i>Local Contact</i>	John Pollano
<i>Phone Number</i>	(978) 623-8350

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Emergency Planning Recommendations for Class B River Intakes
4. Source Water Protection
5. Appendices

Section 1: Description of the Water System

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Groundwater Sources

IWPA

Susceptibility: High

Well Name	Source ID#
Abbott Well	3009000-03G

Surface Water Sources

Source Name	Source ID #	Susceptibility
Haggetts Pond Reservoir	3009000-01S	High
Fish Brook Station	3009000-02S	High
Merrimack River	3009000-03S	High

The Andover Water Department (Andover) maintains and operates four public water supply sources. Andover's surface water supplies are located within the Merrimack River basin, with the Abbott Well being in the Shawsheen River basin. The Abbott Well interim wellhead protection area (IWPA), and Haggetts Pond Reservoir (01S) and Fishbrook Station (02S) water supply protection areas are located entirely within Andover. The intake for the Merrimack River (03S) is in Andover.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

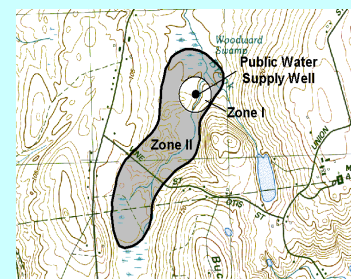
Class B Drinking Water Sources

There are twelve Class B drinking water sources on rivers in Massachusetts, eleven in the urbanized northeast and one in the western part of the State. Five of these sources are located on the Merrimack River. The large watersheds and historically urbanized land uses associated with major rivers makes source protection a challenge at the Class B sources.

A Class B water body source such as the Merrimack River does not have Zone A, B and C protection areas, as do Class A water body sources. For the purposes of the SWAP assessments, a 400 foot setback area along the river and all feeder streams has been delineated for Class B water body sources that is referred to as an

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



“Emergency Planning Zone”. Land uses and activities within this zone are of particular concern for source protection and emergency planning because of their proximity to the water supply.

River drinking water sources are particularly susceptible to spills and accidental releases from public and private discharges; accidents related to vehicles, railroads, airports, boats; utility easements; fixed site releases at industrial and public facilities; inappropriate use of pesticides and fertilizers; improper disposal of hazardous household waste; and illegal dumping of a variety of substances.

This assessment has been conducted on the watershed area upstream of the Andover intake. In addition, DEP has delineated a 400-foot emergency planning zone (shown on the GIS map that accompanies this report) adjacent to the river and its tributaries for the purpose of this assessment.

Section 2: Land Uses in the Protection Areas

The IWPA and watersheds for Andover's reservoir and the Fish Brook/Merrimack River intake are primarily a mixture of forest and residential, with a small portion consisting of agricultural, commercial, and industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Activities in Zone A/Emergency Planning Zone
3. Chemical and Hazardous Materials Manufacture, Storage and Use
4. Agricultural Activities
5. Residential Land Uses
6. Transportation Corridors
7. Road and Maintenance Depots
8. Oil or Hazardous Material Contamination Sites
9. Comprehensive Surface Water Protection Planning

The ranking of susceptibility to contamination for the Abbott Well IWPA, Fish Brook Station, Haggets Pond Reservoir, and Merrimack River watershed is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone I – The Zone I for Abbott Well is a 275 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for the Abbott Well (03G) contains a local road, a house, and approximately 30 parking spaces.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

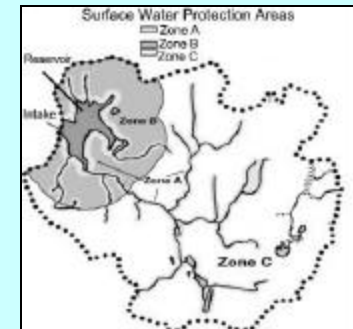
2. Activities in Zone A/Emergency Planning Zone - A Zone A for a reservoir includes all areas within 400 feet of the reservoir shore line and within 200 feet of either side of all streams and feeder ponds that flow into the reservoir.

Class B River Intakes

Class B water sources do not have Zone A, B and C protection areas as the Class A sources do. For the purposes of this report, an "Emergency Planning Zone" has been delineated. The **Emergency Planning Zone** is the land area within 400 feet of both sides of the river including all tributary streams and surface water bodies.

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

The Emergency Planning Zone is a 400 foot setback on either side of the river and all tributaries to a Class B river intake. Land use activities within a Zone A or Emergency Planning Zone may have an impact on surface water sources. Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and, un-permitted and unauthorized activities. Also, wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.

Zone A/Emergency Planning Zone Recommendations:

Work with communities within the combined watersheds to:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP’s Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A and Emergency Planning Zone should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.
- ✓ Identify stormwater drains and the drainage system along transportation corridors. Work to better manage stormwater by pre-treating contaminated stormwater and/or redirecting stormwater outside of the Zone A and Emergency Planning Zone.
- ✓ Continue your efforts to protect these areas and to monitor and review activities within the Zone A and Emergency Planning Zone.

3. Chemical and Hazardous Materials Manufacture, Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs)/Aboveground Storage Tanks (ASTs). Although many facilities within the watershed

use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

(Continued on page 8)

**When you wash your car in the driveway,
Remember
you’re not *just* washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb, then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Source ID #	Potential Contaminant Sources*
Agricultural				
Fertilizer Storage or Use	Few	M	03S	Leaks, spills, improper handling, or over-application of fertilizers
Livestock Operations	1	M	02S	Improper handling of manure (microbial contaminants)
Manure Storage or Spreading	1	H	02S	Improper handling of manure (microbial contaminants)
Pesticide Storage or Use	Few	H	03S	Leaks, spills, improper handling, or over-application of pesticides
Commercial				
Body Shops	2	H	03S	Improper management of vehicle paints, solvents, and primer products
Gas Stations	12	H	02S, 03S	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/Auto Repair Shops	5	H	03S	Spills, leaks, or improper handling of automotive fluids, and solvents
Cemeteries	Few	M	03S	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Dry Cleaners	1	H	03S	Spills, leaks, or improper handling of solvents and wastes
Funeral Homes	Several	L	03S	Spills, leaks, or improper handling of hazardous chemicals
Golf Courses	7	M	02S, 03S	Over-application or improper handling of fertilizers or pesticides
Printer and Blueprint Shops	2	M	02S, 03S	Spills, leaks, or improper handling or storage of printing inks and chemicals
Railroad Tracks and Yard	4	H	03G, 03S	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Sand and Gravel Mining/Washing	Few	M	03S	Spills or leaks from heavy equipment, fuel storage, clandestine dumping

Land Uses	Quantity	Threat	Source ID #	Potential Contaminant Sources*
Industrial				
Asphalt, Coal Tar, and Concrete Plants	1	M	03S	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Chemical Storage or Manufacture	Numerous	H	03S	Spills, leaks, or improper handling or storage of chemicals or process waste
Electronics/Electrical Manufacturers	1	H	02S	Spills, leaks, or improper handling or storage of chemicals and process wastes
Hazardous Materials Storage	Numerous	H	02S, 03S	Spills, leaks, or improper handling or storage of hazardous materials
Industrial Parks	Few	H	03S	Leaks, spills of chemicals from improper handling or storage
Nuclear Power Plants	1	H	03S	Spills, leaks, or improper handling of radioactive materials
Plastic Manufacturers	1	H	03S	Spills, leaks, or improper handling or storage of solvents, resins and process wastes
Residential				
Fuel Oil Storage (at residences)	100+	M	All	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	100+	M	All	Over-application or improper storage and disposal of pesticides
Miscellaneous				
Aboveground Storage Tanks	Few	M	01S, 02S, 03S	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	100+	L	01S, 02S, 03S	Microbial contaminants
Combined Sewer Overflows	Several	L	03S	Microbial and non-microbial contaminants including industrial wastewater; improper disposal of hazardous wastes
Composting Facilities	1	L	02S	Storage and improper handling of organic material, animal waste, and runoff
Fishing/Boating	100+	L	03S	Fuel and other chemical spills, microbial contaminants
Landfills and Dumps	4	H	02S, 03S	Seepage of leachate
Large Quantity Hazardous Waste Generators	15	H	03S	Spills, leaks, or improper handling or storage of hazardous materials and waste
NPDES Locations	2	L	03S	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	50+	--	02S, 03S	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.

Land Uses	Quantity	Threat	Source ID #	Potential Contaminant Sources*
Miscellaneous				
Road and Maintenance Depots	2	M	01S, 03S	Spills, leaks, or improper handling or storage of de-icing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	Several	M	03S	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	29	M	02S, 03S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains	100+	L	01S, 02S, 03S	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Superfund Sites	1	H	03S	Spills, leaks, or improper handling or storage of oil or hazardous materials and waste
Transmission Line Rights-of-Way	9	L	All	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	5	M	01S, 02S, 03S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	100+	H	02S, 03S	Spills, leaks, or improper handling of stored materials
Utility Substation Transformers	1	L	03S	Spills, leaks, or improper handling of chemicals and other materials including PCBs
Very Small Quantity Hazardous Waste Generators	100+	L	02S, 03S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/ Recycling Stations	3	M	03S	Improper management, seepage, and runoff of water contacting waste materials
<p>Notes:</p> <ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

(Continued from page 4)

- ✓ Continue monitoring water quality in the Merrimack River.
- ✓ Continue to plan and prepare for spills by communicating with municipalities and facilities in the Ipswich River watershed, and by conducting drills.

4. Agricultural Activities – Agricultural land uses, cropland and pastures, comprise about 2% of the combined watersheds. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, underground and aboveground storage tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills. Agricultural activities can also be a potential source of microbial contamination from improper manure management.

Agricultural Recommendations:

- ✓ Work with farmers to make them aware of the water supply and to encourage the use of a U.S. Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ The Massachusetts Department of Food & Agriculture’s booklet titled “On-Farm Strategies to Protect Water Quality - An Assessment & Planning Tool for Best Management Practices” (December 1996) describes technical and financial assistance programs related to the control of erosion and to the management of nutrients, pests, manure, grazing and irrigation.
- ✓ Work with farmers to ensure that pesticides, fertilizers and manure are being stored within a structure designed to prevent runoff.

5. Residential Land Uses – Approximately 30% of the combined watersheds and IWPA consist of residential areas, of which a large portion is served by private septic systems, with the remainder being served by municipal sewerage. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

**When you fertilize the lawn,
Remember
you're not *just* fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108

Residential Land Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

6. Transportation Corridors - Several major transportation corridors and other paved and unpaved local roads cross through the watersheds and IWPA. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins. The steep topography of the watershed results in application of de-icing materials to protect public health and safety by keeping the roads passable.

Transportation Corridor Recommendations:

Work with communities within the combined watersheds to:

- ✓ Identify stormwater drains and the drainage system along transportation corridors.
- ✓ Work with the Towns and State to have catch basins inspected, maintained, and cleaned on a regular schedule.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Establish vegetated buffers along roads and parking areas to provide some filtration of contaminants.

- ✓ Encourage regular street sweeping. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.
- ✓ Conduct emergency drills to be ready for spills.
- ✓ Regularly inspect the watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.

7. Road and Maintenance Depots - Potential sources of contamination in state and municipal facilities can result from accidental dumping, spills, leaks, vehicle washing operations, or from wastewater treatment. Waste management and product storage pose the greatest threats with a wide variety of potentially harmful contaminants.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with the watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow to the Zone II.
2. The groundwater in this area probably discharges to surface water feature such as a river rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

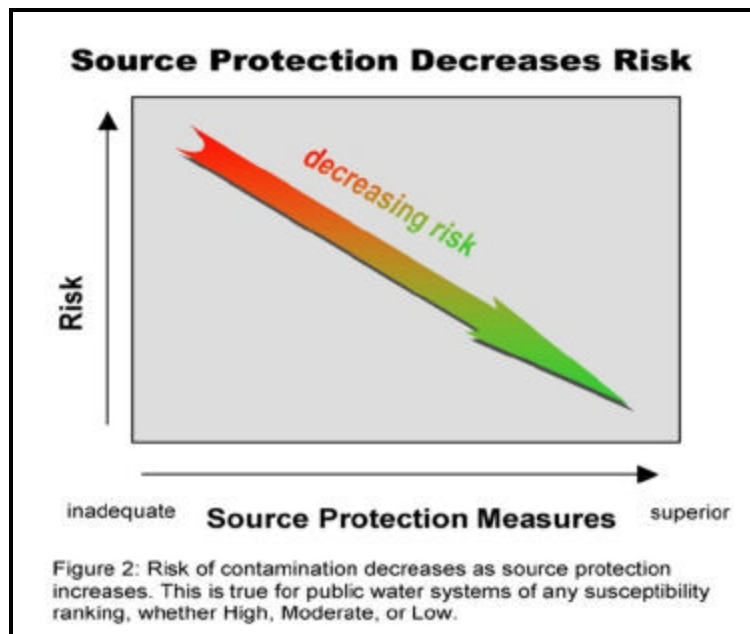


Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and Zone A?	YES (Abbott Well)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials. To the extent possible, remove prohibited activities in Zone A and Zone I to comply with DEP's Zone A and Zone I requirements.
	NO (Haggetts Pond, Fish Brook)	
Are the Zone Is and Zone As posted with "Public Drinking Water Supply" Signs?	NO	Economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone Is and Zone As regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I and Zone A?	NO	Monitor prohibited activities in Zone A and Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	Work with the Planning Board to compare land use controls to see that they meet current requirements of 310 CMR 22.20 (B) and 310 CMR 22.20 (C). Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	UNKNOWN	Work with communities within the Merrimack River Watershed to develop land use controls that meet current requirements of 310 CMR 22.20 (B) and 310 CMR 22.20 (C).
Planning		
Does the PWS have a local surface water and wellhead protection plan?	IN PROGRESS	Continue to develop and implement a surface water supply and wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" and "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	UNKNOWN	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	YES	Currently, outreach is through the annual Consumer Confidence Report, school programs, direct mailings, treatment plant tours, League of Women Voters. Increase residential outreach through additional bill stuffers, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the Zone C.

Road and Maintenance Depots Recommendations:

Work with communities within the combined watersheds to:

- ✓ Institute **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/neeat/muni/index.html>. Encourage road and maintenance depots to develop best management practices to insure proper salt storage, proper maintenance of facilities and good housekeeping practices.
- ✓ Adequately size salt pile structure to allow for the loading and unloading of salt within the structure. Review the Department of Environmental Protection's Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.
- ✓ Encourage proper storage of materials at these facilities. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.

8. Presence of Oil or Hazardous Material Contamination Sites – The Zone C for Fish Brook Station contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 3-0003072 and 3-0003339. Refer to the attached maps and Appendix C for more information on these sites, and for information on DEP Tier Classified Oil and/or Hazardous Material Release Sites within the watershed for the Merrimack River.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

9. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the Town of Andover has a watershed protection overlay district bylaw that was passed in

1986. It is unlikely that this bylaw meets current DEP Groundwater Protection regulations 310 CMR 22.21 and Surface Water Protection regulations 310 CMR 22.20 (b) and (c). A Groundwater and Surface Water Supply Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply reservoirs.

Protection Planning Recommendations:

Work with communities within the combined watersheds to:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan".
- ✓ Encourage watershed towns to adopt controls that meet 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ Continue to work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the towns, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Protection areas that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Emergency Planning Recommendations for Class B River Intakes

Prevention

Public water suppliers with a river source may take preventive measures to protect the source from unexpected releases. Here are some suggestions.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

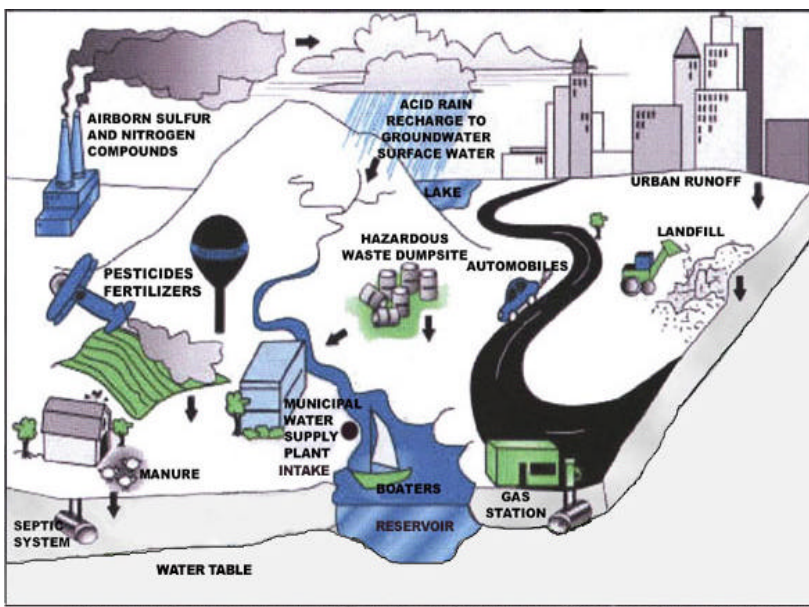
- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

1. Title III (Emergency Planning and Community Right-to-Know) of the Superfund Amendments & Reauthorization Act (SARA) of 1986 required that each community **develop a comprehensive emergency response plan**. Suppliers should review the existing plan to ensure that water supply issues are satisfactorily addressed in the plan, that current response personnel and their correct telephone numbers are listed, and that the entire plan is regularly reviewed and updated by community officials.

The community plan, or a separate water supplier plan, should include copies of policies in the event of spills or releases; regulatory notification requirements such as what size spills are required to be reported, who to call, telephone numbers, and what information is required to be reported; map of intakes, tributaries, watershed boundaries, adjacent public wells, and locations of sites where spills or accidental releases could occur.

2. **Identify, map and distribute information** to local emergency responders regarding the locations of intakes on the river, tributaries, watershed boundaries, public wells adjacent to river; chemical use at municipal, state, and industrial facilities in watershed (contact Fire Dept., DEP); locations of stormwater drains and the locations of known dams in the event that they can be manipulated by authorized individuals for contaminant control. The Fire Dept., Board of Health, Planning Board, Local Emergency Planning Committee (LEPC), DEP and others may have existing information to help with your work. SARA requires companies to work with the community's LEPC if they handle extremely hazardous chemicals in quantities above established thresholds.
3. **Develop a communication list** of contacts at upstream and downstream facilities, dams, as well as other public water suppliers on, or adjacent to, rivers. Notify owners and operators of these facilities about the location of your intake and request, in writing, that you be notified immediately in the event of a chemical spill or unexpected discharge. Take this opportunity to educate others about water supply protection.
4. **Provide comments** to municipal boards in other cities/towns in the watershed about proposed development, land use controls, Best Management Practices (BMPs) for stormwater flow into tributaries, and other issues to avoid future problems.
5. **Post signs** along major roads in watershed which direct the public to call "911" or other appropriate local number in case of spills. Be aware of accident-prone areas and transport routes of chemicals if possible.
6. **Educate** the public, local officials, Civil Defense, local emergency response team, and others about water supply protection issues. Educate businesses about toxic use reduction.
7. **Conduct household hazardous waste collection days** and establish permanent collection sites, away from sensitive watershed areas, for used batteries, paints, motor oil, etc.

8. **Conduct drills**, in coordination with local/regional response teams, to test policies and procedures and to practice responding to various situations. Including businesses, local officials and staff, Fire Departments, Boards of Health, Civil Defense, school administration, and others in planning and implementing the drills will allow for several town or region-wide concerns to be addressed and tested at the same time, including: issuing health advisories, conducting neighborhood and/or school evacuations, and evaluating the town's communication system (both making responders aware of the emergency and issuing advisories to the public when necessary via television, radio, and other news media), equipment and emergency plan in general.



MODIFIED FROM © 2000 The Groundwater Foundation. Illustrated by C. Mansfield, The Groundwater Foundation

Figure 1: Sample watershed with examples of potential sources of contamination

9. Critique the drills and **modify components** of the emergency response system as needed.

Responding to Emergencies

Drinking water supply professionals responding to local emergencies need to be adequately prepared and trained, and know their roles and responsibilities. Here are some suggestions.

1. **Know regulatory reporting requirements** of state and federal agencies. Know who to call, telephone numbers and what information to report.
2. **Know your role & responsibilities**. Have access to, and be familiar with, the emergency communication list, policies and procedures for emergency response; know when, and how, to safely handle spills or other events until first responders arrive on scene; know what steps to take to avoid drawing contaminants into the water supply system; be familiar enough with local watershed characteristics to provide incident commander with information and advice.
3. **Provide training and materials to responding staff**. Water supply staff, including new employees, should be adequately trained, have access to appropriate materials (storm drain covers, absorbent pads, booms, etc.), up-to-date policies, procedures, and communication lists to perform tasks for which they are responsible.

Follow-up

Steps can be taken to ensure better preparedness in the event of future emergency situations. Here are some suggestions.

1. **Provide follow-up reports** to the public on the resolution of the situation.
2. **Share the information** learned from drills and real situations with others in order to better protect all public drinking water sources.

Section 4: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system watersheds and IWPA contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Current Land Uses and Source Protection:

As with many water supply protection areas, the system watersheds and IWPA contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Coordinating with Merrimack Valley Planning Commission to map all septic systems and rank them according to environmental sensitivity
- Creating positions for water resource coordinator and environmental analyst
- Develop community link project to target source protection with school children
- Seventy-five percent of the Haggetts Pond Reservoir watershed is protected open space

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Develop and implement a Groundwater and Surface Water Supply Protection Plan.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in watersheds and to cooperate on responding to spills or accidents.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or hazardous materials contamination site.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

- ✓ Work with businesses and others who have landscaped areas in the watersheds to encourage BMPs for the use of fertilizer and pesticide.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Continue to inspect the Zone A and Zone I areas regularly, and when feasible, remove prohibited non-water supply activities.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watersheds and IWPA. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 5: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

- 1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
- 2. MA DEP SWAP Strategy
- 3. Land Use Pollution Potential Matrix
- 4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN ANDOVER'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
133314	M K S INSTRUMENTS INC	6 SHATTUCK RD	ANDOVER	TURRPT	LARGE QUANTITY TOXICS USER
130130	US INTERNAL REVENUE SERVICE	310 LOWELL ST	ANDOVER	PLANT	AIR QUALITY PERMIT
215576	VICOR CORPORATION	400 FEDERAL ST	ANDOVER	TURRPT	LARGE QUANTITY TOXICS USER
215576	VICOR CORPORATION	400 FEDERAL ST	ANDOVER	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
38043	NEW ENGLAND HYDRO TRANS ELECTRIC	RADISSON RD	AYER	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
--	BROOK VILLAGE CONDO	C/O RELIABLE PROP. MGMT/P.O. BOX 210	BOXBOROUGH	GROUND	GROUNDWATER DISCHARGE
39155	CHELMSFORD LANDFILL	SWAIN RD	CHELMSFORD	SLF	CHARGEABLE CLOSED LANDFILL
366769	MERRIMACK VALLEY SCREEN PRINTING INC	6 ADAMS ST	CHELMSFORD	PLANT	NON-NOTIFIER AQ FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
366769	MERRIMACK VALLEY SCREEN PRINTING INC	6 ADAMS ST	CHELMSFORD	DISCH	NON-NOTIFIER IWW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
130648	BROX INDUSTRIES INC	1471 METHUEN STREET	DRACUT	HWR	HAZARDOUS WASTE RECYCLER
131963	UNITED CIRCUITS INC	100 PLEASANT ST	DRACUT	TURRPT	LARGE QUANTITY TOXICS USER
131963	UNITED CIRCUITS INC	100 PLEASANT ST	DRACUT	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
366857	DUNSTABLE GAS INC	238 PLEASANT ST	DUNSTABLE	FULDSP	FUEL DISPENSER STAGEII
32187	WEST AUTO REPAIR	30 PLEASANT ST	DUNSTABLE	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	FULDSP	FUEL DISPENSER STAGEII
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
39315	GROTON LANDFILL	600 COW POND BRK RD	GROTON	SLF	CHARGEABLE LANDFILL
363409	GROTON TRANSFER STATION	600 COW POND BROOK RD	GROTON	TRSTN	SMALL HANDLING FACILITY
377537	AGGREGATE INDUSTRIES	80 AYER RD	LITTLETON	TURRPT	LARGE QUANTITY TOXICS USER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
229723	MIDDLESEX CONCRETE	80 AYER RD	LITTLETON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
363549	WAKEFIELD MATERIALS CORPORATION LITTLETO	80 AYER RD	LITTLETON	TURRPT	LARGE QUANTITY TOXICS USER
370173	CHEVROLET OF LOWELL INC	831 ROGERS ST	LOWELL	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
370173	CHEVROLET OF LOWELL INC	831 ROGERS ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
53879	FREUDENBERG NONWOVEN	221 JACKSON ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
53879	FREUDENBERG NONWOVEN	221 JACKSON ST	LOWELL	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131011	IDEAL TAPE CO	1400 MIDDLESEX ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131011	IDEAL TAPE COMPANY	1400 MIDDLESEX ST	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
177799	JIFFY LUBE	645 ROGERS ST	LOWELL	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
177799	JIFFY LUBE	645 ROGERS ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
53845	LOWELL COGENERATION COMPANY LP	282 WESTERN AVE	LOWELL	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
53845	LOWELL COGENERATION COMPANY LP	282 WESTERN AVE	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
53845	LOWELL COGENERATION COMPANY LP	282 WESTERN AVE	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131026	MA COM INC	100 CHELMSFORD ST	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
131026	MA COM INC	100 CHELMSFORD ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
215603	NE NO6 INC SPEEDEE OIL CHANGE & TUNE UP	1485 MIDDLESEX ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
35763	NTI LUBRICATIONS INC	1713 MIDDLESEX ST	LOWELL	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
35763	NTI LUBRICATIONS INC	1713 MIDDLESEX ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
131016	ROCHE BROTHERS BARREL & DRUM CO	161 PHOENIX AVE	LOWELL	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
365455	SPECIALTY MATERIALS INC	1449 MIDDLESEX AVE	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
365455	SPECIALTY MATERIALS INC	1449 MIDDLESEX AVE	LOWELL	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
34343	ASHLAND CHEMICAL CO	400 MAIN ST	TEWKSBURY	HANDLR	TRANSPORTER OF HAZARDOUS WASTE
34343	ASHLAND CHEMICAL COMPANY	400 MAIN ST	TEWKSBURY	TURRPT	LARGE QUANTITY TOXICS USER
53791	ECRM	554 CLARK RD	TEWKSBURY	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
370388	3A GAS	257 MIDDLESEX RD	TYNGSBORO	FULDSP	FUEL DISPENSER
322941	ANDYS AUTO BODY	339 WESTFORD ST	TYNGSBORO	PLANT	AIR QUALITY PERMIT

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
322941	ANDYS AUTO BODY	339 WESTFORD ST	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
348617	BARR ASSOC INC	300 POTASH HILL RD	TYNGSBORO	PLANT	AIR QUALITY PERMIT
320025	BELCASTRO FURNITURE RESTORATION	77 WESTECH DR	TYNGSBORO	PLANT	AIR QUALITY PERMIT
320025	BELCASTRO FURNITURE RESTORATION	77 WESTECH DR	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132303	BFI WASTE SYSTEMS OF NORTH AMERICA	385 DUNSTABLE RD	TYNGSBORO	PLANT	AIR QUALITY PERMIT
132303	BFI WASTE SYSTEMS OF NORTH AMERICA	385 DUNSTABLE RD	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
132303	BFI WASTE SYSTEMS OF NORTH AMERICA	385 DUNSTABLE RD	TYNGSBORO	DISCH	INDUSTRIAL WASTE WATER SURFACE WATER DISCHARGE
298585	BRITE KLEEN CLEANERS	26 WESTFORD RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32160	COLONIAL AUTO BODY	121 LAKEVIEW AVE	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
110594	DANA WALLBOARD SUPPLY INC	6 CUMMINGS RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
302562	DUFFS GARAGE	92 KENDALL RD	TYNGSBORO	DISCH	BELOW INDUSTRIAL WASTE WATER REG LEVELS
302562	DUFFS GARAGE	92 KENDALL RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
291199	DUNBAR BUS CO	33 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132214	HUSSEY PLASTICS INC	65 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
307332	INDEPENDENT SPRAY	26R WOODLAWN ST	TYNGSBORO	PLANT	AIR QUALITY PERMIT
307332	INDEPENDENT SPRAY	26R WOODLAWN ST	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
368183	MOBIL 12369	95-97 WESTFORD RD	TYNGSBORO	FULDSP	FUEL DISPENSER
324984	MUTUAL OIL	397 MIDDLESEX RD	TYNGSBORO	FULDSP	FUEL DISPENSER
321837	MUTUAL OIL CO INC	397 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
368441	NEW ENGLAND TRANSIT SALES INC	30 PROGRESS AV	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
132833	PICONICS INC	26 CUMMINGS RD	TYNGSBORO	PLANT	AIR QUALITY PERMIT
132833	PICONICS INC	26 CUMMINGS RD	TYNGSBORO	DISCH	INDUSTRIAL WASTE WATER HOLDING TANK
132833	PICONICS INC	26 CUMMINGS RD	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
853	THUNDERBIRD PLAZA	MIDDLESEX RD	TYNGSBORO	GROUND	GROUNDWATER DISCHARGE
209890	TJ MAXX PLAZA	440 MIDDLESEX RD	TYNGSBORO	GROUND	GROUNDWATER DISCHARGE
230673	TOWN AND COUNTRY GARAGE	54 PAWTUCKET BLVD	TYNGSBORO	FULDSP	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
37104	TYNGSBORO AUTO WORKS	33 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
310633	TYNGSBORO HIGHWAY DEPT	89 KENDELL RD	TYNGSBORO	FULDSP	FUEL DISPENSER
130848	WESTFORD ANODIZING CORP	12 NORTH MAIN ST	WESTFORD	TURRPT	LARGE QUANTITY TOXICS USER

UNDERGROUND STORAGE TANKS WITHIN ANDOVER'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
MOBIL #01-252	309 LOWELL ST	ANDOVER	GAS STATION	3
M W LEAHY CO INC	21 WESTFORD RD	AYER	TRUCK/TRANSPORT	3
MASS DPW MAINT DEPOT	SWANSON RD	BOXBOROUGH	STATE	2
VERC BOXBORO EXXON	1425 MASSACHUSETTS AVE	BOXBOROUGH	GAS STATION	4
CONOCOPHILLIPS EXXON	5 DRUM HILL RD	CHELMSFORD	GAS STATION	3
CUMBERLAND GULF #2428	71 DRUM HILL RD	CHELMSFORD	GAS STATION	5
MARCHAND OIL CO INC	89 STEADMAN ST	CHELMSFORD	PETROLEUM DISTRIBUTOR	7

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
SUNOCO #0011-8927	100 DRUM HILL RD	CHELMSFORD	GAS STATION	3
BROX INDUSTRIES INC	1471-1480 METHUEN ST	DRACUT	CONTRACTOR	
DRACUT AUTO CARE INC	500 NASHUA RD	DRACUT	GAS STATION	3
HIGHWAY DEPT	833 HILDRETH ST	DRACUT	MUNICIPAL	2
JAY'S SERVICE CENTER INC	1225 MAMMOTH RD	DRACUT	GAS STATION	6
JIM'S SERVICE STATION INC	1643 LAKEVIEW AVE	DRACUT	GAS STATION	4
P J KEATING COMPANY	240 BRIDGE ST	DRACUT	ASPHALT PLANT	1
SHELL SERVICE STATION	1100 LAKEVIEW ST	DRACUT	GAS STATION	3
DUNSTABLE GENERAL STORE INC	238 PLEASANT ST	DUNSTABLE	GAS STATION	3
A L PRIME ENERGY	619 BOSTON RD	GROTON	GAS STATION	3
TOWN OF GROTON HIGHWAY DEPT	500 COW POND BROOK RD	GROTON	MUNICIPAL	2
ARCHER'S MOBIL # 01-787	500 KING ST	LITTLETON	GAS STATION	5
DCM ENTERPRISES INC	25 KING ST	LITTLETON	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
LITTLETON CITGO	256 AYER RD	LITTLETON	GAS STATION	3
MILLER AUTO SERVICES	2 HARVARD ST	LITTLETON	GAS STATION	1
SHELL SERVICE STATION #137781	460 KING ST	LITTLETON	GAS STATION	3
TMC LEASING LLC	80 AYER RD	LITTLETON	INDUSTRIAL	2
TOWN OF LITTLETON	39 AYER RD	LITTLETON	MUNICIPAL	3
VERYFINE PRODUCTS INC	20 HARVARD RD	LITTLETON	INDUSTRIAL	3
ADVANCED AUTO PERFORMANCE	479 BROADWAY ST	LOWELL	GAS STATION	2
AMES CORPORATION	121 CHURCH ST	LOWELL	OTHER	1
BRIDGE STREET SUNOCO	356 BRIDGE ST	LOWELL	GAS STATION	3
GASOLINE MERCHANTS INC	297 BROADWAY ST	LOWELL	GAS STATION	4
GEORGE MACHERAS	66 BROADWAY ST	LOWELL	OTHER	1
GETTY STATION #30618	801 LAKEVIEW AVE	LOWELL	GAS STATION	2
GORHAM STREET SUNOCO	380 GORHAM ST	LOWELL	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
HAFFNER'S	1150 BRIDGE ST	LOWELL	GAS STATION	7
HAFFNER'S	215 DUTTON ST	LOWELL	GAS STATION	6
HAFFNER'S	189 APPLETON ST	LOWELL	GAS STATION	4
HESS 21322	558 PAWTUCKET ST	LOWELL	GAS STATION	3
HESS 21509	300 MERRIMACK ST	LOWELL	GAS STATION	3
IDEAL TAPE COMPANY	1400 MIDDLESEX ST	LOWELL	INDUSTRIAL	3
KAZANJIAN ENTERPRISE	1460 MIDDLESEX ST	LOWELL	GAS STATION	5
KINNEY'S TEXACO SERVICE INC	262 PAWTUCKET ST	LOWELL	GAS STATION	3
LOWELL GENERAL HOSPITAL	295 VARNUM AVE	LOWELL	HOSPITAL	2
LOWELL REGIONAL WATER UTILITY	815 PAWTUCKET BLVD	LOWELL	MUNICIPAL	2
MOUJAES INC C&J MOBIL	443 BRIDGE ST	LOWELL	GAS STATION	4
MULDOON BROTHERS INC	498 BROADWAY ST	LOWELL	GAS STATION	2
PETE AND RAY AUTO REPAIR INC	472 PRINCETON BLVD	LOWELL	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
RAY MARCHAND OIL / AUTO	493 PRINCETON BLVD	LOWELL	GAS STATION	4
ROD'S AUTO CARE	626 ROGERS ST	LOWELL	GAS STATION	3
SUNOCO	711 ROGERS ST	LOWELL	GAS STATION	4
TONY'S FILLING STATION INC	51 MAMMOTH RD	LOWELL	GAS STATION	2
UNIVERSITY OF LOWELL	SOUTH CAMPUS	LOWELL	OTHER	1
UNIVERSITY OF LOWELL NORTH CAMPUS	NEW (1989) DORMITORY	LOWELL	OTHER	1
US POSTAL SERVICE LOWELL MAINT	44 POST OFFICE SQ	LOWELL	FEDERAL / NON-MILITARY	1
USA PETROLEUM CORP	780 ROGERS ST	LOWELL	GAS STATION	3
CRANE RENTAL CO INC	205 OLD MAIN ST	TEWKSBURY	OTHER	2
MOBIL #01-JFA	2 MAIN ST	TEWKSBURY	GAS STATION	6
MOBIL #01-PRJ	940 ANDOVER ST	TEWKSBURY	GAS STATION	5
TEXACO SERVICE	1 MAIN ST	TEWKSBURY	GAS STATION	4
BROWNING-FERRIS IND OF MASS INC	385 DUNSTABLE RD	TYNGSBORO	TRUCK/TRANSPORT	2

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
EXXONMOBIL OIL CORPORATION	95-97 WESTFORD RD	TYNGSBORO	GAS STATION	3
MIDDLESEX TEXACO	397 MIDDLESEX RD	TYNGSBORO	GAS STATION	2
RT-3 GAS INC	257 MIDDLESEX RD	TYNGSBORO	GAS STATION	4
STATELINE TOWN & COUNTRY	54 PAWTUCKET BLVD	TYNGSBORO	GAS STATION	2
TOWN & COUNTRY	54 PAWTUCKET BLVD	TYNGSBOROUGH	GAS STATION	2
TOWN OF TYNGSBORO HIGHWAY DEPT	89 KENDALL RD	TYNGSBORO	MUNICIPAL	2
COOK OIL CO INC	23 FORGE VILLAGE RD	WESTFORD	OTHER	1
CUMBERLAND FARMS #2408	158-180 LITTLETON RD	WESTFORD	GAS STATION	4
GETTY STATION #30562	1 OAK HILL RD	WESTFORD	GAS STATION	2
GETTY STATION #30633	262 GROTON RD	WESTFORD	GAS STATION	2
MOBIL #361	185 LITTLETON RD	WESTFORD	GAS STATION	4
ROBERT M HICKS INC	124 MAIN ST	WESTFORD	CONTRACTOR	1
WESTFORD CITGO	169 PLAIN RD	WESTFORD	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
WESTFORD TIRE & AUTO	215 GROTON RD	WESTFORD	GAS STATION	4

For More Information On Underground Storage Tanks, Visit The Massachusetts Department Of Fire Services Web Site:
[Http://www.State.Ma.Us/Dfs/Ust/Usthome.Htm](http://www.state.ma.us/dfs/ust/usthome.htm)

Note: This Appendix Includes Only Those Facilities Within The Water Supply Protection Area(s) That Meet State Reporting Requirements And Report To The Appropriate Agencies. Additional Facilities Located Within The Water Supply Protection Area(s) Should Be Considered In Local Drinking Water Source Protection Planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Andover Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Status
3-0003072	309 LOWELL ST	ANDOVER	TIER 2
3-0003339	LOVEJOY RD	ANDOVER	TIER 2
2-0000026	1425 MASSACHUSETTS AVE	BOXBOROUGH	TIER 1B
3-0019820	5 DRUMHILL RD	CHELMSFORD	TIER 2
3-0000049	11 SCHOOL ST	CHELMSFORD	DEF TIER 1B
3-0001069	BROADWAY RD	DRACUT	DEF TIER 1B
3-0003492	1507 LAKEVIEW AVE	DRACUT	TIER 2
3-0002400	25 VICTORY LN	DRACUT	TIER 2
3-0004645	91 MILL ST	DRACUT	TIER 2
3-0016749	1507 LAKEVIEW AVE	DRACUT	TIER 2
3-0000496	1095 LAKEVIEW AVE	DRACUT	TIER 2

RTN	Release Site Address	Town	Status
3-0004651	2060 BRIDGE ST	DRACUT	DEF TIER 1B
2-0000223	37 GILSON RD	GROTON	TIER 1B
2-0012568	256 AYER RD	LITTLETON	TIER 1C
2-0014006	TAYLOR ST	LITTLETON	TIER 1C
3-0001052	150 PHOENIX AVE	LOWELL	TIER 2
3-0001056	VARNUM AVE	LOWELL	DEF TIER 1B
3-0004561	2461 MARKET ST	LOWELL	DEF TIER 1B
3-0019949	10 TECHNOLOGY DR	LOWELL	TIER 2
3-0000347	1 KYAN ST	LOWELL	TIER 2
3-0002629	774 DUTTON ST	LOWELL	DEF TIER 1B
3-0004664	205 CHURCH ST	LOWELL	DEF TIER 1B
3-0000041	200 MARKET ST	LOWELL	TIER 2
3-0017036	180 CHURCH ST	LOWELL	TIER 2
3-0002044	1465 MIDDLESEX ST	LOWELL	DEF TIER 1B
3-0001975	70 FRENCH AMORY ST	LOWELL	DEF TIER 1B
3-0017559	290 WESTFORD ST	LOWELL	TIER 2
3-0000355	BROADWAY DUMMER ST	LOWELL	DEF TIER 1B
3-0018128	219 EAST MERRIMAC ST	LOWELL	TIER 2
3-0011528	WESTFORD ST	LOWELL	DEF TIER 1B
3-0002609	262 PAWTUCKET ST	LOWELL	TIER 2
3-0001620	66 BROADWAY	LOWELL	TIER 2
3-0004509	253 MERRIMACK ST	LOWELL	TIER 1C
3-0013603	262 PAWTUCKET ST	LOWELL	TIER 2
3-0014250	PEVEY ST @ ARLENE ST	LOWELL	DEF TIER 1B
3-0014974	780 ROGERS ST	LOWELL	TIER 2
3-0018004	50 ARCAND DR	LOWELL	DEF TIER 1B
3-0017804	479 BROADWAY	LOWELL	TIER 2
3-0018153	498 BROADWAY	LOWELL	TIER 2
3-0002756	224 WALKER ST	LOWELL	DEF TIER 1B

RTN	Release Site Address	Town	Status
3-0000351	161 PHOENIX AVE	LOWELL	TIER 2
3-0001954	1682-1700 MIDDLESEX ST	LOWELL	TIER 2
3-0000852	43 LAKEVIEW AVE	LOWELL	DEF TIER 1B
3-0001328	356 BRIDGE ST	LOWELL	TIER 2
3-0000535	AIKEN AVE PERKINS ST	LOWELL	TIER 2
3-0002544	1 UNIVERSITY AVE	LOWELL	TIER 2
3-0000810	2 MAIN ST	TEWKSBURY	TIER 2
3-0000439	400 MAIN ST RTE 38	TEWKSBURY	TIER 1B
3-0001162	450 CLARK RD	TEWKSBURY	TIER 2
3-0003181	940 ANDOVER ST	TEWKSBURY	TIER 2
3-0012734	MAIN ST AND CLARK RD	TEWKSBURY	DEF TIER 1B
3-0001717	365 MAIN ST	TEWKSBURY	TIER 2
3-0002516	1 MAIN ST	TEWKSBURY	TIER 2
2-0000392	292 MIDDLESEX RD	TYNGSBOROUGH	DEF TIER 1B
2-0000136	475-530 DUNSTABLE RD	TYNGSBOROUGH	TIER 1A
2-0010348	11 12 WATERWAY PL	TYNGSBOROUGH	TIER 1C
2-0013702	95 97 WESTFORD RD	TYNGSBOROUGH	TIER 2
2-0011257	95 97 WESTFORD RD	TYNGSBOROUGH	TIER 2
2-0012727	54 PAWTUCKET BLVD	TYNGSBOROUGH	TIER 1C
2-0011980	160 MAIN ST	WESTFORD	TIER 2
2-0014121	12 BROOKSIDE RD	WESTFORD	TIER 1C
2-0013703	169 PLAIN RD	WESTFORD	TIER 1C
2-0000160	169 PLAIN RD	WESTFORD	TIER 1C
2-0012528	262 GROTON RD	WESTFORD	TIER 2
2-0012368	262 GROTON RD	WESTFORD	TIER 2
2-0010019	2 CARL THOMPSON RD	WESTFORD	TIER 2
2-0000232	10 NORTH MAIN ST	WESTFORD	TIER 2

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection Source Water Assessment Program (SWAP) Report for Ashland Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Table 1: Public Water System Information

<i>PWS Name</i>	Ashland Water and Sewer Department
<i>PWS Address</i>	Town Hall/P.O. Box 9
<i>City/Town</i>	Ashland, Massachusetts
<i>PWS ID Number</i>	3014000
<i>Local Contact</i>	Joseph Celano - Superintendent
<i>Phone Number</i>	508-881-0112

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>Source Susceptibility</i>
Howe Street G.P. Well #4	3014000-04G	150-200	moderate
Howe Street G.P. Well #5	3014000-05G	150-200	moderate
Howe Street G.P. Well #6	3014000-07G	150-200	moderate

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Source Water Protection
4. Taking the Next Steps to Protection
5. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone III: The land area beyond the area of Zone II from which surface water and groundwater drain into Zone II.

Section 1: Description of the Water System

The wells for Ashland Water Department are on the north side of Howe Street (to the south of the reservoir). The land on which the wells are situated is a small peninsula that is located in the Hopkinton Reservoir. Each well has a Zone I radius of 150-200 feet.

The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone II. Water from each well has potassium hydroxide, and zinc orthophosphate added for corrosion control; phosphates are added for iron and manganese removal; and chlorine and ammonium sulfate to make chloramine which is added as a disinfectant.

The Town of Ashland is presently constructing two additional wells in the same Zone II as the existing wells. A filtration plant is also being constructed at this location.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Discussion of Land Uses in the Protection Areas

The Zone II for Ashland is primarily forest and is surrounded on three sides by water (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Key issues include:

1. Local Transportation Corridor
2. Landscape Nursery
3. Protection Planning

The overall ranking of susceptibility to contamination for Ashland is moderate, based on the presence of at least one moderate threat land use within the Zone II, as seen in Table 2.

1. Local Transportation Corridor – Howe Street runs southwest of Zone II, and through the Zone III of Ashland's Howe Street Wells. Roadway construction, maintenance, and typical use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. De-icing salt washes off into storm drains or onto adjacent ground. In addition, roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

Transportation Corridor - Recommendations :

- V **Low Salt Areas** - If sodium concentrations in the wells reach levels consistently above the secondary standard, submit a formal request to the towns of Ashland and Hopkinton's Department of Public Works to establish a Low Salt Area along the section of Howe Street adjacent to the wells.
- V **Design and Best Management Practices** – Work with the Towns of Ashland and Hopkinton's Department of Public Works in designing proper storm water catch basins that discharge down gradient of the wells, and develop best management practices (BMPs) to prevent runoff from becoming polluted, and where it is polluted, to reduce the amount that reaches surface waters.
- V **Planning and Developing** - Notify town officials of EPA's Intermodal Surface Transportation Efficiency Act. The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 contains provision for the planning and developing of highway systems and a host of transportation enhancement activities including the mitigation of water

pollution due to highway runoff. Through ISTEA, states are able to use a portion of their federal funding allotment for runoff pollution control devices and other BMPs to prevent polluted runoff from reaching lakes, rivers, and bays.

- V **Emergency Response Plan** - Work with the Ashland and Hopkinton fire department's to review emergency response plans. Updates to this plan should include transportation corridors. Request emergency response teams to coordinate Emergency Response Drills and practice containment of potential contaminants from accidents.

2. Landscape Nursery – There is a commercial nursery located in the Zone III of the Howe Street Wells. Potential sources of contamination associated with this land use is from nonpoint source pollution. Nonpoint source pollution (NPS) occurs when rainfall, snowmelt, or irrigation runs over land or through the ground, picks up pollutants, and deposits them into rivers, lakes, or introduces them into ground water. The most common NPS pollutants associated with nurseries are nutrients (fertilizers, grease, organic matter) and toxic chemicals (pesticides, organic, inorganic compounds)

The best means of dealing with nonpoint source water problems involves the analysis, design, evaluation and implementation of measures, structural or non-structural, to address or correct a water quality problem or concern, or reduce the impact of the problem on the environment.

Landscape Nursery – Recommendations:

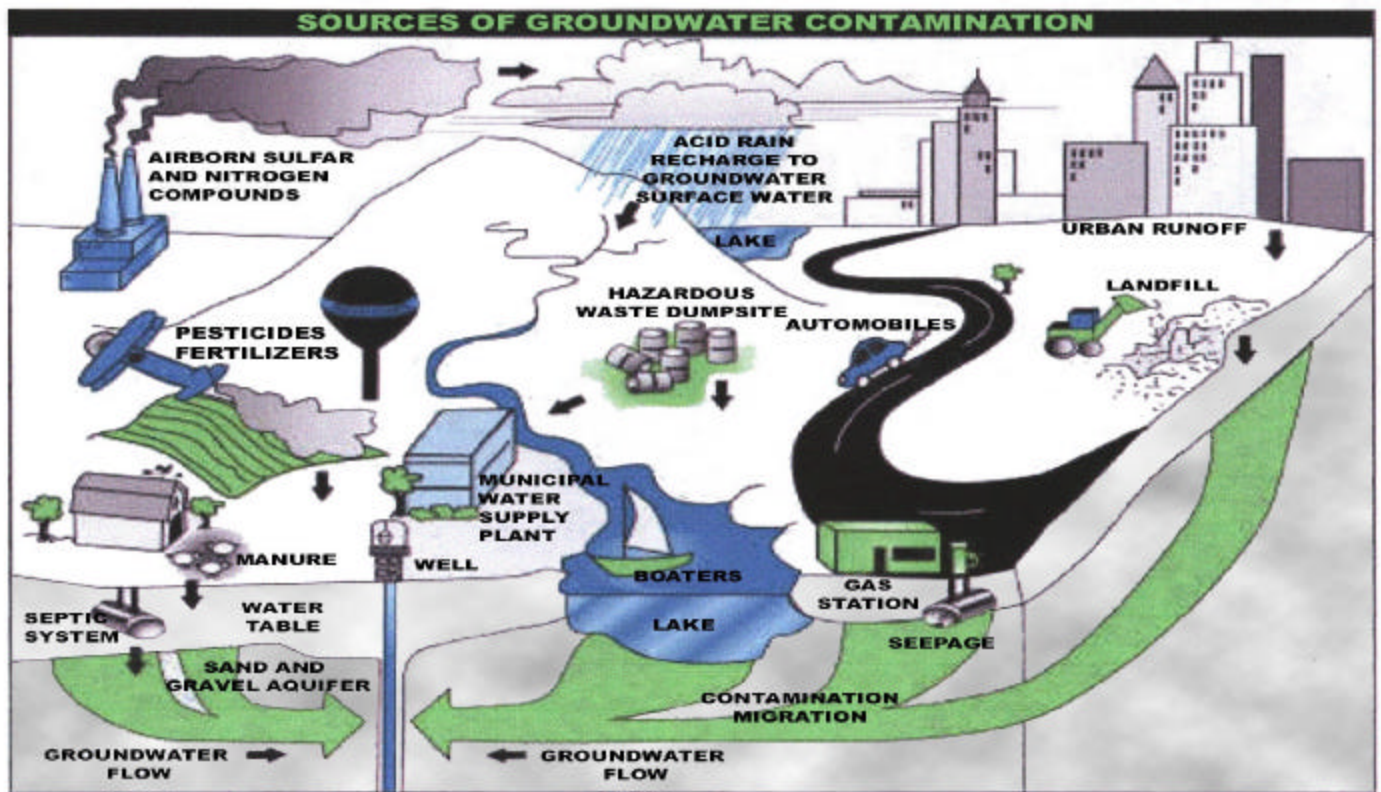
- V **Best Management Practices: Structural or Non-structural** - Work with the nursery owner to develop the most effective Best Management Practices (BMPs). Examples of structural or non-structural BMPs include: installing vegetative or forested filter strips between an agricultural land use and groundwater and a surface-water body to reduce runoff and sedimentation; implementing a conservation tillage practice; locating an on-site wastewater treatment system a proper distance from a well or other water supply; and conducting a soil test and basing decisions about crop nutrient applications upon test results.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



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V **Best Management Practices: Integrated Pest Management Program** - Encourage the nursery to develop and implement an integrated pest management program and pest scouting practice. For more information on integrated pest management refer to <http://www.massdfa.org/pesticides/ipm/>.

V **Best Management Practices: Fertilizers and Pesticides** - Encourage commercial nurseries and landscapers to use Best Management Practices (BMP) when storing, handling and applying pesticides and fertilizers. For more information on pesticide and fertilizer storage and handling refer to the Massachusetts Department of Food and Agriculture - Pesticide Bureau website at <http://www.massdfa.org>.



3. Protection Planning - Protection planning prevents drinking water contamination by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are numerous resources available to help communities in developing a plan for protecting drinking water supply wells.

Table 2: Land Use in the Protection Areas (Zones I and II)

Note: For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Potential Source of Contamination*
Miscellaneous			
Nurseries	1	M	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling, or over-application
Transportation Corridors	1	M	Fuels and other hazardous materials: accidental leaks or spills, over-application or improper handling of pesticides
Water Treatment	1	M	Treatment plant chemicals: spills, leaks, or improper handling or storage of chemicals and equipment maintenance materials
Water Supply Protection Area % that is Sewered = 0%			
Notes:			
1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.			
2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.			
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.			
* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.			

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

What are "BMPs?"

Best Management Practices are structural (i.e. oil & grease trap catch basins), nonstructural (i.e. hazardous waste collection days) or managerial measures that are used to protect and improve surface water and groundwater quality.

Protection Planning - Recommendation:

- V **Local Controls** - Coordinate efforts with local officials in to compare existing controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls refer to <http://www.state.ma.us/dep/brp/dws/>.
- V **Develop a Wellhead Protection Plan** – Establish a local team, and refer them to <http://www.state.ma.us/dep/brp/dws/> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.

Other land uses and activities that may be potential contaminant sources include agriculture, forestry operations, and residential. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential contaminant sources is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential contaminant sources are identified, specific recommendations like those below should be used to better protect the Ashland’s wellfield.

Section 3: Source Water Protection

Implementing source protection measures and Best Management Practices (BMPs) will reduce the Ashland Water Supply System’s susceptibility to contamination. Additional source protection recommendations are listed in Table 3 and the Key Issues above.

Ashland is commended for taking an active role in promoting source protection measures in the Ashland Water Department’s supply area through:

- Working with the Town to adopt a Groundwater Protection District bylaw.

Appendix 1 includes specific recommendations for each of the following:

➤ **Partner with Local Businesses:**

Since many small businesses and industries use hazardous materials and produce hazardous waste products, it is essential to educate the business community about drinking water protection. Encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

➤ **Provide Outreach to the Community:**

Public education and community outreach ensure the long-term protection of drinking water supplies. Awareness often generates community cooperation and support. Residents and business owners are more likely to change their behavior if they know where the wellhead protection recharge area is located; what types of land uses and activities pose threats; and how their efforts can enhance protection.

➤ **Plan for the Future:**

One of the most effective means of protecting water supplies is planning, such as the adoption of local controls to protect watersheds and ground water. These controls may include health regulations, general ordinances, and zoning bylaws that prohibit potential sources of contamination from wellhead protection areas.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. These recommendations are only part of your ongoing local drinking water source protection.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water is a place people want to live and businesses want to locate

www.state.ma.us/dep/brp/dws

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Table 3: Current Protection and Recommendations for Ashland

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	NO	The Department of Environmental Management owns a small section of the Zone I along the waterline of the reservoir. The Town of Ashland is currently negotiating acceptable controls as part of the new source approval for 2 proposed new wells. Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES	Continue monitoring non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO	The Town of Ashland's "Groundwater Protection District" bylaw does not meet the floor drain requirements. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	N/A	
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	The town is encouraged to implement a program, and to include municipal facilities. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	YES	Aim additional efforts at agricultural, commercial, industrial and municipal uses.

Section 4: Additional Resources Available for Source Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The assessment and protection recommendations in this SWAP report are provided as a tool to spur community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

The Ashland Water Department should supplement this SWAP report with local information on potential sources of contamination and land uses. To aid in the protection of the wells, local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, the town library and the local media.

Funding Resources:

The Department's Wellhead Grant Protection Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing Water Supply Source Protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. For additional information, please refer to the program fact sheet from this year. Please note: each spring DEP posts a new Request for Response for the Grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State R. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm> and, "An Internet Guide to Financing Stormwater Management" at <http://stormwaterfinance.urbancenter.iupui.edu>

Section 5: Appendices

1. Protection Recommendations
2. Additional Documents on Source Protection



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Bedford Water Department

What is SWAP?

The Source Water Assessment Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Bedford Water Department
<i>PWS Address</i>	314 Great Road
<i>City/Town</i>	Bedford, Massachusetts 01730
<i>PWS ID Number</i>	3023000
<i>Local Contact</i>	Peter Churchill - Superintendent
<i>Phone Number</i>	781-275-7605

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

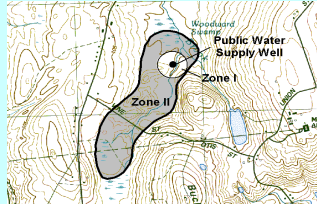
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

Zone II #: 130

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Shawsheen Road GP Well #2	3023000-02G
Shawsheen Road GD Well #4	3023000-08G
Shawsheen Road GD Well #5	3023000-09G
Well #6	3023000-04G

Zone II #: 243

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Hartwell Road Well #10	3023000-10G
Hartwell Road Well #11	3023000-11G
Hartwell Road Well #12	3023000-12G

Zone II #: 244

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Mitre/Rte. 62 Well #3	3023000-03G
Turnpike GP Well #7	3023000-05G
Turnpike GP Well #8	3023000-06G
Turnpike GP Well #9	3023000-07G

IWPAs:

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Page School GP Well #1	3023000-01G

The wells for the Bedford Water Department are located within four separate water supply protection areas, with portions extending into the towns of Billerica, Burlington, Concord, Lexington, and Lincoln. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II and Interim Wellhead Protection Areas (IWPA). All wells except the Shawsheen Wells are inactive; the Town maintains them in "inactive but protected" status for potential future use.

The Bedford Water Department purchases a portion of its water supply from the Massachusetts Water Resources Authority (MWRA). Attached, please find a copy of the SWAP report prepared for the MWRA sources.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safe-water/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone IIs and IWPAs for Bedford are a mixture primarily of residential, industrial, and commercial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous materials storage and use
3. Residential land uses
4. Transportation corridors
5. Federal Superfund Site and Oil or Hazardous Material Contamination Sites
6. Comprehensive wellhead protection planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone Is – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The following non-water supply activities occur in the Zone Is of Bedford's wells:

Shawsheen Wells and Well #6: There are several homes within the Zone I of each of the Shawsheen Wells.

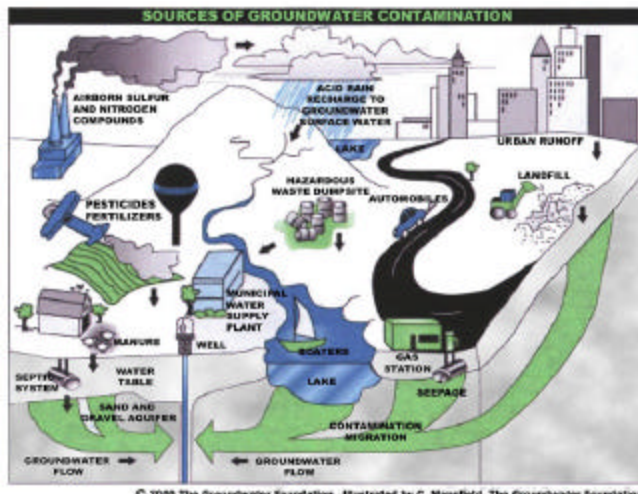
Turnpike Well #9: There are numerous parking spaces within the Zone I of this well.

Page School Well: There is a considerable portion of the school building, numerous parking spaces, athletic fields, and three house lots in the Zone I of this well.

Mitre/Rte. 62 Well #3: There is a portion of an office building, and section of Route 62 in the Zone I of this well.

Zone I Recommendations:

- ✓ Coordinate efforts with landowners to identify the location of septic systems, and if needed, determine the feasibility of relocating septic systems outside of the Zone I
- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.



- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Hazardous Materials Storage and Use – Twenty eight percent of the land area within the Zone IIs is commercial or industrial land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs). If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP’s for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floordrain requirements. See brochure “Industrial Floor Drains” for more information.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

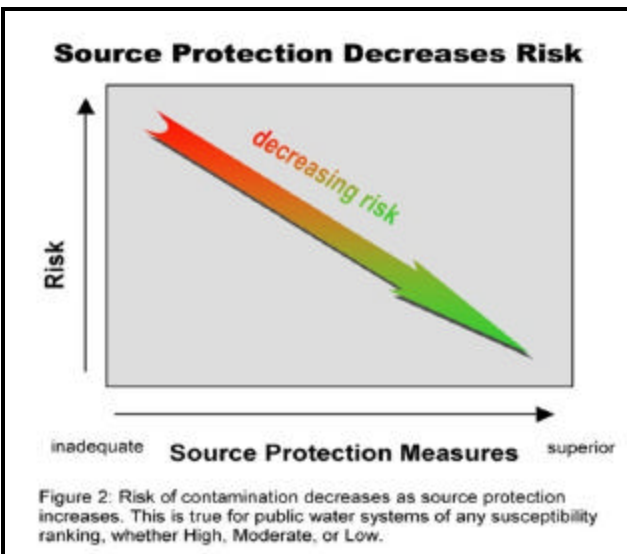
3. Residential Land Uses – Approximately 60% of the combined Zone IIs and IWPA’s consist of residential areas, some of which are still served by private septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

4. Transportation Corridors - Local roads are common throughout the Zone IIs. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other



potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catchbasins.

Transportation Corridor Recommendations:

- ✓ Identify stormwater drains and the drainage system along transportation corridors. Work to better manage stormwater by pre-treating contaminated stormwater and/or redirecting stormwater outside of the Zone II.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren’t yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II #/ Source ID#	Potential Source of Contamination
Agricultural				
Fertilizer Storage or Use	Numerous	M	130, 243, 01G	Leaks, spills, improper handling, or over-application of fertilizers
Landscaping	1	M	130, 01G	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Manure Storage or Spreading	2	H	243	Improper handling of manure (microbial contaminants)
Nurseries	1	M	243	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Pesticide Storage or Use	Numerous	H	130, 243, 01G	Leaks, spills, improper handling, or over-application of pesticides
Commercial				
Airports	1	H	243	Spills, leaks, or improper handling of fuels, de-icers, salt, and other hazardous chemicals
Car/Truck/Bus Washes	1	L	130, 01G	Improper management of vehicle wash water; soaps; oils; greases; metals; salts
Body Shops	1	H	244	Improper management of vehicle paints, solvents, and primer products
Gas Stations	2	H	130, 244, 01G	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	7	H	130, 244, 01G	Spills, leaks, or improper handling of automotive fluids, and solvents
Bus and Truck Terminals	5	H	244	Spills, leaks, or improper handling of fuels and maintenance chemicals
Cemeteries	1	M	130, 01G	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Dry Cleaners	1	H	130, 01G	Spills, leaks, or improper handling of solvents and wastes
Funeral Homes	2	L	130, 244, 01G	Spills, leaks, or improper handling of hazardous chemicals

Activities	Quantity	Threat*	Zone II #/ Source ID#	Potential Source of Contamination
Commercial				
Nursing Homes	1	L	130, 01G	Microbial contaminants
Paint Shops	1	H	130, 01G	Spills, leaks, or improper handling or storage of paints, solvents, other chemicals
Research Laboratories	3	M	243, 244	Spills, leaks, or improper handling or storage of laboratory chemicals and wastes
Industrial				
Electronics/Electrical Manufacturers	3	H	243, 244	Spills, leaks, or improper handling or storage of chemicals and process wastes
Hazardous Materials Storage	3	H	244	Spills, leaks, or improper handling or storage of hazardous materials
Hazardous Waste Storage, Treatment and Recycling	1	H	243	Spills, leaks, or improper handling or storage of hazardous materials
Industry/Industrial Parks	Numerous	H	244	Spills, leaks, or improper handling or storage of industrial chemicals and metals
Pharmaceutical Manufacturers	1	H	244	Spills, leaks, or improper handling and or storage of chemicals
Residential				
Fuel Oil Storage (at residences)	Numerous	M	130, 243, 244, 01G	Spills, leaks, or improper handling of fuel oil
Lawn Care / Gardening	Numerous	M	130, 243, 244, 01G	Over-application or improper storage and disposal of pesticides and fertilizers
Septic Systems / Cesspools	Numerous	M	243	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous				
Aboveground Storage Tanks	5	M	244	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	1	L	244	Microbial contaminants
Composting Facilities	1	L	130, 01G	Storage and improper handling of organic material, animal waste, and runoff
Large Quantity Hazardous Waste	1	H	130	Spills, leaks, or improper handling or storage of hazardous materials and waste
Military Facilities (Past And Present) Type: <u>Air base</u>	1	H	243	Spills, leaks, or improper handling or storage of fuel, chemicals, pesticides and herbicides, and other materials; may include ordnance or waste landfill/dump sites

Activities	Quantity	Threat*	Zone II #/ Source ID#	Potential Source of Contamination
Miscellaneous				
NPDES Locations	4	L	130, 01G	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	12	--	130, 244, 01G	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road And Maintenance Depots	2	M	130, 244, 01G	Spills, leaks, or improper handling or storage of deicing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	1	M	243	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small quantity hazardous waste generators	13	M	130, 243, 244, 01G	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Numerous	L	130, 243, 244, 01G	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Superfund Sites	1	H	243	Spills, leaks, or improper handling or storage of oil or hazardous materials and waste
Transmission Line Rights-of-Way Type: <u>gas</u>	2	L	244	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	5	M	130, 243, 244, 01G	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	32	H	130, 243, 244, 01G	Spills, leaks, or improper handling of stored materials
Utility Substation Transformers	1	L	244	Spills, leaks, or improper handling of chemicals and other materials including PCBs
Very Small Quantity Hazardous Waste Generator	24	L	130, 243, 244, 01G	Spills, leaks, or improper handling or storage of hazardous materials and waste
<p>Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <ul style="list-style-type: none"> THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater. 				

- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

5. Presence of Federal Superfund Site and Oil or Hazardous Material Contamination Sites – The Zone II for the Hartwell Road Wells contains two United States Environmental Protection Agency (USEPA) Superfund Sites that are associated with DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0000223, 3-0002611, 3-0011385, 3-0003097 and 30018677. The Zone IIs also contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 3-0000265, 3-0000588, 3-0000698, 30001341, 3 0002367, 3-0002407, 3-0003526, 3-0003798, 3-0012151, 3-0014582, 3-0015492, 0017283, 3-0017578, and 3-0018661. Refer to the attached map and Appendix 3 for more information.

The Superfund Sites may have been partial contributors to the historic contamination at the Hartwell Road Wells.

Federal Superfund Site and Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased groundwater monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

6. Protection Planning – Bedford has water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Occasionally update the Town’s Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21 (2). Occasionally update local controls to meet changes in current regulations. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floordrains, be sure to include floordrain controls that meet 310 CMR 22.21(2).

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES (Hartwell Road Wells)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Shawsheen Wells, Well #6, Turnpike Wells, Page School Well, Well #3)	To the extent possible, remove non-water supply activities from each Zone I to comply with DEP's Zone I requirements. Investigate options for gaining ownership or control of the Zone I for groundwater sources.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	All but the Page School Well	Post Page School Well with "Public Drinking Water Supply" signs until such time that it is officially abandoned. Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	All but the Page School Well	Inspect the Zone I of Page School Well until such time that it is officially abandoned. Also, continue daily inspections of drinking water protection areas.
Are water supply -related activities the only activities within the Zone 1?	YES (Hartwell Road Wells)	Continue monitoring for non-water supply activities in Zone Is.
	NO (Shawsheen Wells, Well #6, Turnpike Wells, Page School Well, Well #3)	Monitor non-water supply activities in Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town's bylaw meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	SOME	Burlington, Concord, and Lexington have adopted land use controls that include Bedford's source protection areas. Work with Billerica and Lincoln to include Bedford's Zone IIs in their wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	YES	Update plan to reflect changes in source protection measures. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	NO	Develop a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	YES	Encourage representatives from citizens' groups, neighboring communities, and the business community to participate in committee.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Continue with Bedford's Hazardous Materials Contingency Plan program. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. Bedford is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Adopting a local bylaw for the control and management of hazardous materials. This bylaw is implemented through the Board of Health, with additional inspection support from the Fire Department. It requires local businesses to develop a hazardous material contingency and training plan.
- Purchasing sixteen (16) acres that abuts the Zone I for the Shawsheen Wells.
- Adopting a local bylaw that meets DEP's prohibited land uses within a Zone II.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any on going remedial action conducted for the known oil or contamination sites.
- ✓ Develop and implement a Wellhead Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

APPENDIX A: DEP PERMITTED FACILITIES WITHIN BEDFORD'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
357405	AFFYMETRIX INC	4G CROSBY DR	BEDFORD	HANDLER	VERY SMALL QUANTITY GENERATOR
357405	AFFYMETRIX INC	4G CROSBY DR	BEDFORD	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
205026	ATEX INC	32 WIGGINS AVE	BEDFORD	HANDLER	VERY SMALL QUANTITY GENERATOR
230319	BEDROCK CONSTRUCTION	198 CONCORD RD	BEDFORD	HANDLER	VERY SMALL QUANTITY GENERATOR
31941	COMPUTERVISION CORP	100 CROSBY DR	BEDFORD	HANDLER	VERY SMALL QUANTITY GENERATOR
215637	EKTRON APPLIED IMAGING INC	23 CROSBY DR	BEDFORD	HANDLER	VERY SMALL QUANTITY GENERATOR
126407	EXXON CO USA 35681	349 THE GREAT RD	BEDFORD	HANDLER	VERY SMALL QUANTITY GENERATOR
317340	HOLOGIC INC	35 CROSBY DR	BEDFORD	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
133414	JIFFY LUBE	331 GREAT RD	BEDFORD	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
133414	JIFFY LUBE	331 GREAT RD	BEDFORD	HANDLER	VERY SMALL QUANTITY GENERATOR
294158	LUONGOS DRY CLEANERS INC	32 SHAWSHEEN AVENUE	BEDFORD	HANDLER	VERY SMALL QUANTITY GENERATOR
287376	MEDISENSE INCORPORATED	4 CROSBY DR	BEDFORD	DISCHARGE	MWRA SEWER CONNECTION

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
207374	MITRE CORP THE	202 BURLINGTON RD	BEDFORD	HANDLER	SMALL QUANTITY GENERATOR
287378	POLAROID CORPORATION	201 BURLINGTON RD	BEDFORD	DISCHARGE	MWRA SEWER CONNECTION
357802	POLAROID GRAPHICS IMAGING LLC	6 CROSBY DR	BEDFORD	HANDLER	SMALL QUANTITY GENERATOR
339580	PRE OWNED ELECTRONICS INC	125 MIDDLESEX TURNPIKE	BEDFORD	DISCHARGE	MWRA SEWER CONNECTION
31387	RAYTHEON ELECTRONIC SYSTEMS RES	HARTWELL RD - SYSTEMS BLDG	BEDFORD	HANDLER	SMALL QUANTITY GENERATOR
325264	SHELL 137706	358 GREAT RD	BEDFORD	FUEL DISPENSER	FUEL DISPENSER
342359	TERADYNE INC	26 CROSBY DRIVE	BEDFORD	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
364377	TOSCO EXXON 2634702	349 GREAT RD	BEDFORD	FUEL DISPENSER	FUEL DISPENSER
36078	A M A TRANSPORTATION CO INC	28 PLANK ST	BILLERICA	HANDLER	VERY SMALL QUANTITY GENERATOR
133455	HILLQUIST W K INC	35 DUNHAM RD	BILLERICA	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
34908	NEW ENGLAND MOTOR FREIGHT CO INC	9 DUNHAM RD	BILLERICA	HANDLER	VERY SMALL QUANTITY GENERATOR
329030	PREPRESS SOLUTIONS INC	29 DUNHAM ROAD	BILLERICA	HANDLER	SMALL QUANTITY GENERATOR
300518	RYDER TRANSPORTATION SERVICES	1 DUNHAM RD	BILLERICA	HANDLER	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
300522	SPECTRUM PRINTING & GRAPHICS	31 DUNHAM RD	BILLERICA	HANDLER	SMALL QUANTITY GENERATOR
300522	SPECTRUM PRINTING & GRAPHICS	31 DUNHAM RD	BILLERICA	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
135845	BURLINGTON TEXACO	161 BEDFORD ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR
135845	BURLINGTON TEXACO	161 BEDFORD ST	BURLINGTON	FUEL DISPENSER	FUEL DISPENSER
30599	DOBBINS AUTO REPAIR	177 BEDFORD ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR
133590	EG&G INTERNATIONAL INC	217 MIDDLESEX TNPk	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR
27566	FILM MICROELECTRONICS	17 A ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR
27566	FILM MICROELECTRONICS	17 A ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
208445	GALAXIE LAB INC	18 A ST	BURLINGTON	HANDLER	SMALL QUANTITY GENERATOR
130450	GOODWAY GRAPHICS OF MASS INC	16 A ST	BURLINGTON	HANDLER	SMALL QUANTITY GENERATOR
130450	GOODWAY GRAPHICS OF MASS INC	16 A ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
132537	MILLIPORE CORP MILLIGEN DIV	186 MIDDLESEX TNPk	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR
215009	MOBIL OIL CORP SS PPY	173 BEDFORD ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
215009	MOBIL OIL CORP SS PPY	173 BEDFORD ST	BURLINGTON	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
215009	MOBIL OIL CORP SS PPY	173 BEDFORD ST	BURLINGTON	FUEL DISPENSER	FUEL DISPENSER
358001	NEUBER INDUSTRIAL DIAMOND CO	10 B ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
32739	NIXDORF COMPUTER CORP	23 FOURTH AVE	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR
335293	O SULLIVAN KENNEDY	157 BEDFORD STREET	BURLINGTON	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
343664	SURMET CORPORATION	33 B STREET	BURLINGTON	HANDLER	SMALL QUANTITY GENERATOR
364387	TOSCO EXXON 2634718	181 CAMBRIDGE ST	BURLINGTON	FUEL DISPENSER	FUEL DISPENSER
358318	TOSCO REFINING LP	181 CAMBRIDGE ST	BURLINGTON	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
296062	DRAPER LABORATORY SPECIAL TEST FACILITY	711 VIRGINIA RD	CONCORD	PLANT	BELOW AQ REGULATED THRESHOLDS

UNDERGROUND STORAGE TANKS WITHIN BEDFORD'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
BEDFORD DPW GARAGE	314 GREAT ROAD	BEDFORD	ROAD & MAINTENANCE DEPOT	5000	FUEL OIL
BEDFORD DPW GARAGE	314 GREAT ROAD	BEDFORD	ROAD & MAINTENANCE DEPOT	6000	GASOLINE
BEDFORD DPW GARAGE	314 GREAT ROAD	BEDFORD	ROAD & MAINTENANCE DEPOT	6000	DIESEL
VERIZON	70 PAGE ROAD	BEDFORD	UTILITY	4000	KEROSENE
SEWER PUMPING STATION	299 GREAT ROAD	BEDFORD	MUNICIPAL	1500	DIESEL
SHAWSHEEN WELLFIELD	131 SHAWSHEEN ROAD	BEDFORD	PUBLIC WATER SUPPLY	1500	POTASSIUM HYDROXIDE
SHELL SERVICE STATION	358 GREAT ROAD	BEDFORD	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	358 GREAT ROAD	BEDFORD	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	358 GREAT ROAD	BEDFORD	GAS STATION	10000	GASOLINE
MITRE CORPORATION	202 BURLINGTON ROAD	BEDFORD	ELECTRONICS	20000	FUEL OIL
MITRE CORPORATION	202 BURLINGTON ROAD	BEDFORD	ELECTRONICS	5000	FUEL OIL
MITRE CORPORATION	202 BURLINGTON ROAD	BEDFORD	ELECTRONICS	5000	FUEL OIL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
MITRE CORPORATION	202 BURLINGTON ROAD	BEDFORD	ELECTRONICS	2000	FUEL OIL
TOSCO EXXON	349 GREAT ROAD	BEDFORD	GAS STATION	12000	GASOLINE
TOSCO EXXON	349 GREAT ROAD	BEDFORD	GAS STATION	10000	GASOLINE
TOSCO EXXON	349 GREAT ROAD	BEDFORD	GAS STATION	10000	GASOLINE
AMA TRANSPORTATION	28 PLANK STREET	BILLERICA	TRUCK TERMINAL	10000	DIESEL
NEW ENGLAND WHEELS	50 DUNHAM ROAD	BILLERICA		10000	GASOLINE
NEW ENGLAND WHEELS	50 DUNHAM ROAD	BILLERICA		10000	GASOLINE
BURLINGTON TEXICO	161 BEDFORD STREET	BURLINGTON	SERVICE STATION	12000	GASOLINE
BURLINGTON TEXICO	161 BEDFORD STREET	BURLINGTON	SERVICE STATION	10000	GASOLINE
BURLINGTON TEXICO	161 BEDFORD STREET	BURLINGTON	SERVICE STATION	10000	DIESEL
MOBIL SERVICE STATION	173 BEDFORD STREET	BURLINGTON	SERVICE STATION	10000	GASOLINE
MOBIL SERVICE STATION	173 BEDFORD STREET	BURLINGTON	SERVICE STATION	8000	GASOLINE
MOBIL SERVICE STATION	173 BEDFORD STREET	BURLINGTON	SERVICE STATION	6000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
MOBIL SERVICE STATION	173 BEDFORD STREET	BURLINGTON	SERVICE STATION	550	WASTE OIL
TOSCO EXXON	181 CAMBRIDGE STREET	BURLINGTON	SERVICE STATION	10000	GASOLINE
TOSCO EXXON	181 CAMBRIDGE STREET	BURLINGTON	SERVICE STATION	10000	GASOLINE
TOSCO EXXON	181 CAMBRIDGE STREET	BURLINGTON	SERVICE STATION	10000	GASOLINE
TOSCO EXXON	181 CAMBRIDGE STREET	BURLINGTON	SERVICE STATION	1000	WASTE OIL
MIT LINCOLN LAB FLIGHT FACILITY	711 VIRGINIA ROAD	CONCORD	RESEARCH LABORATORY	6000	FUEL OIL
MIT LINCOLN LAB FLIGHT FACILITY	711 VIRGINIA ROAD	CONCORD	RESEARCH LABORATORY	4000	FUEL OIL
MIT LINCOLN LAB FLIGHT FACILITY	711 VIRGINIA ROAD	CONCORD	RESEARCH LABORATORY	1000	GASOLINE

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Bedford Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm> or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0000223	Hartwell Rd	Bedford	Oil
3-0000588	180 Hartwell Rd	Bedford	Oil And Hazardous Material
3-0000698	312 Great Rd	Bedford	Oil
3-0001341	205 Burlington Rd	Bedford	Oil
3-0002407	358 Great Rd	Bedford	Oil
3-0002611	Hartwell Rd	Bedford	
3-0003526	353 Great Rd	Bedford	Oil
3-0003798	125 Middlesex Turnpike	Bedford	Oil
3-0011385	Hanscom Field West Ramp	Bedford	Oil
3-0015492	358 Great Rd	Bedford	Hazardous Material
3-0017283	4D Crosby Dr	Bedford	Oil
3-0018661	3 Plank St	Billerica	Oil And Hazardous Material
3-0000265	183 Bedford St	Burlington	Oil And Hazardous Material
3-0002367	181 Cambridge St	Burlington	
3-0014582	18 A St	Burlington	Hazardous Material
3-0017578	Bedford & Network Dr	Burlington	Oil
3-0003097	Hangar 1 Hanscom WIT East Coast Areotech	Lincoln	Oil
3-0018677	230 Hanscom Dr	Lincoln	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Salem/Beverly Water Supply Board

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Salem/Beverly Water Supply Board
<i>PWS Address</i>	Arlington Street
<i>City/Town</i>	Beverly, Massachusetts 01915
<i>PWS ID Number</i>	3030001
<i>Local Contact</i>	Thomas Knowlton
<i>Phone Number</i>	(978) 922-2521

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

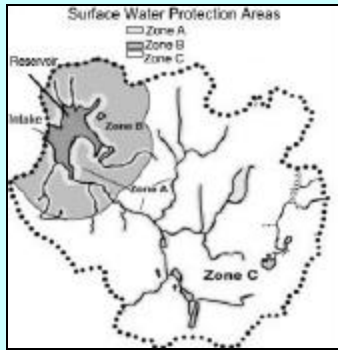
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Emergency Planning Recommendations for Class B River Intakes
4. Source Water Protection
5. Appendices

Section 1: Description of the Water System

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Surface Water Sources

Source Name	Source ID #	Susceptibility
Wenham Lake	3030001-01S	High
Longham Reservoir	3030001-02S	High
Putnamville Reservoir	3030001-03S	High
Ipswich River	3030001-04S	High

The Salem/Beverly Water Supply Board (Salem/Beverly) maintains and operates four public water supply sources. All of Salem/Beverly's water supplies are located within the Ipswich River basin. The reservoirs for Salem/Beverly are located within three separate water supply protection areas, with Wenham Lake (3030001-01S) being in Beverly and Wenham; Longham Reservoir (3030001-02S) is entirely in Wenham; and Putnamville Reservoir (3030001-03S) being entirely in Danvers. The intake for the Ipswich River (3030001-04S) is in Topsfield, with the canal being in Wenham.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Class B Drinking Water Sources

There are twelve Class B drinking water sources on rivers in Massachusetts, eleven in the urbanized northeast and one in the western part of the State. Three of these sources are located on the Ipswich River. The large watersheds and historically urbanized land uses associated with major rivers makes source protection a challenge at the Class B sources.

A Class B water body source such as the Ipswich River does not have Zone A, B and C protection areas, as do Class A water body sources. For the purposes of the SWAP assessments, a 400 foot setback area along the river and all feeder streams has been delineated for Class B water body sources that is referred to as an "Emergency Planning Zone". Land uses and activities within this zone are of particular concern for source protection and emergency planning because of their proximity to the water supply.

River drinking water sources are particularly susceptible to spills and accidental releases from public and private discharges; accidents related to vehicles, railroads, airports, boats; utility easements; fixed site releases at industrial and public facilities; inappropriate use of pesticides and fertilizers; improper disposal of hazardous household waste; and illegal dumping of a variety of substances.

This assessment has been conducted on the watershed area upstream of the Salem/Beverly intake. In addition, DEP has delineated a 400-foot emergency planning zone (shown on the GIS map that accompanies this report) adjacent to the river and its tributaries for the purpose of this assessment.

Glossary

Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 2: Land Uses in the Protection Areas

The watersheds for the Salem/Beverly reservoirs and Ipswich River intake are primarily a mixture of forest and residential use, with a small portion consisting of agricultural, commercial, and industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

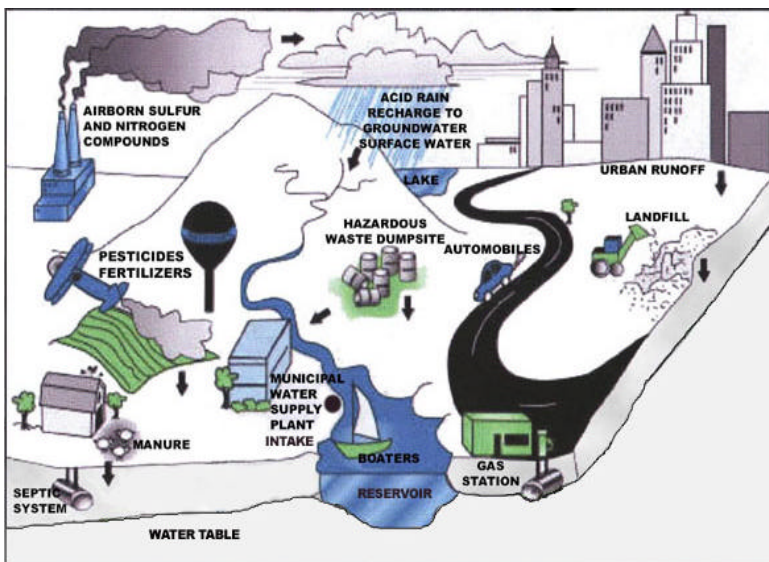
Key Land Uses and Protection Issues include:

1. Activities in Zone A and Emergency Planning Zone
2. Chemical and Hazardous Materials Manufacture, Storage and Use
3. Agricultural Activities
4. Residential Land Uses
5. Transportation Corridors
6. Road and Maintenance Depots
7. Oil or Hazardous Material Contamination Sites
8. Comprehensive Surface Water Protection Planning

The ranking of susceptibility to contamination for Wenham Lake, Longham Reservoir, Putnamville Reservoir, and the Ipswich River watersheds are high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone A and Emergency Planning Zone - A Zone A for a reservoir includes all areas within 400 feet of the reservoir shore line and within 200 feet of either side of all streams and feeder ponds that flow into the reservoir. The Emergency Planning Zone is a 400 foot setback on either side of the river and all tributaries to a Class B river intake. Land use activities within a Zone A

or Emergency Planning Zone may have an impact on surface water sources. Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and, un-permitted and unauthorized activities. Also, wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.



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Figure 1: Sample watershed with examples of potential sources of contamination

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Class B River Intakes

Class B water sources do not have Zone A, B and C protection areas as the Class A sources do. For the purposes of this report, an "Emergency Planning Zone" has been delineated. The **Emergency Planning Zone** is the land area within 400 feet of both sides of the river including all tributary streams and surface water bodies.

Zone A Recommendations:

Work with communities within the combined watersheds to:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A and Emergency Planning Zone should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.
- ✓ Identify stormwater drains and the drainage system along transportation corridors. Work to better manage stormwater by pre-treating contaminated stormwater and/or redirecting stormwater outside of the Zone A and Emergency Planning Zone.

- ✓ Continue your efforts to protect these areas and to monitor and review activities within the Zone A and Emergency Planning Zone.

2. Chemical and Hazardous Materials Manufacture, Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs). Although many facilities within the watershed use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.
- ✓ Continue monitoring water quality in the Ipswich River.
- ✓ Continue to plan and prepare for spills by communicating with municipalities and facilities in the Ipswich River watershed, and by conducting drills.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

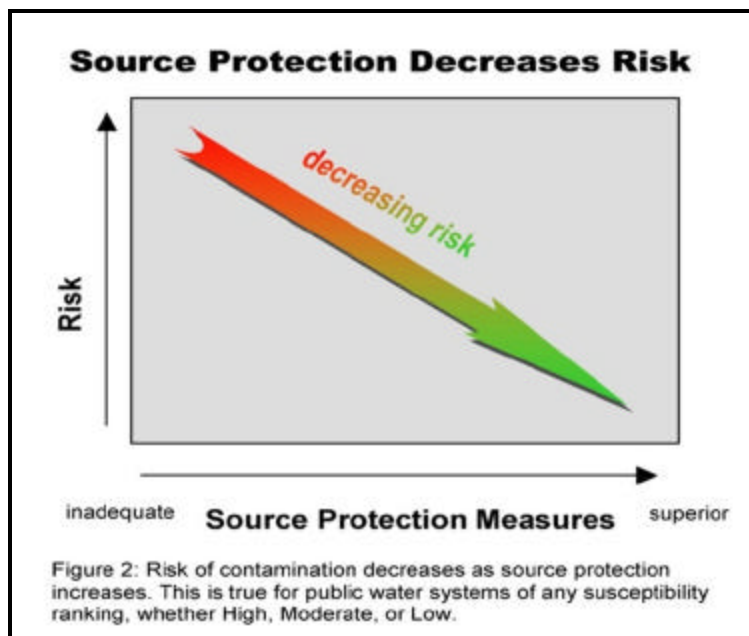
3. Agricultural Activities – Agricultural land uses (cropland, landscape operations, and nurseries) comprise about 7% of the combined watersheds. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, underground and aboveground storage tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills. Agricultural activities can also be a potential source of microbial contamination from improper manure management.

Agricultural Recommendations:

Work with communities within the combined watersheds to:

- ✓ Work with farmers to make them aware of the water supply and to encourage the use of a U.S. Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ The Massachusetts Department of Food & Agriculture’s booklet titled “On-Farm Strategies to Protect Water Quality - An Assessment & Planning Tool for Best Management Practices” (December 1996) describes technical and financial assistance programs related to the control of erosion and to the management of nutrients, pests, manure, grazing and irrigation.
- ✓ Work with farmers, nurseries and landscapers to ensure that pesticides, fertilizers and manure are being stored within a structure designed to prevent runoff.

(Continued on page 8)



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity Zone C	Threat	Zone C Source ID #	Quantity Ipswich River Watershed	Potential Contaminant Sources*
Agricultural					
Dairy Farms	--	M	--	1	Improper handling of manure (microbial contaminants)
Fertilizer Storage or Use	2	M	01S, 03S	Few	Leaks, spills, improper handling, or over-application of fertilizers
Landscaping	--	M	--	1	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Manure Storage or Spreading	1	H	01S	Few	Improper handling of manure (microbial contaminants)
Nurseries	2	M	02S	Few	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Pesticide Storage or Use	2	H	01S, 02S	Few	Leaks, spills, improper handling, or over-application of pesticides
Commercial					
Airports	1	H	01S	--	Spills, leaks, or improper handling of fuels, de-icers, salt, and other hazardous chemicals
Body Shops	--	H	--	9	Improper management of vehicle paints, solvents, and primer products
Gas Stations	2	H	01S	31	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	1	H	01S	39	Spills, leaks, or improper handling of automotive fluids and solvents
Bus and Truck Terminals	--	H	--	6	Spills, leaks, or improper handling of fuels and maintenance chemicals
Cemeteries	1	M	01S	Several	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Dry Cleaners	--	H	--	7	Spills, leaks, or improper handling of solvents and wastes
Golf Courses	1	M	02S	3	Over-application or improper handling of fertilizers or pesticides
Medical Facilities	--	M	--	2	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes

Land Uses	Quantity Zone C	Threat	Zone C Source ID #	Quantity Ipswich River Watershed	Potential Contaminant Sources*
Commercial					
Nursing Homes	--	L	--	2	Microbial contaminants
Photo Processors	--	H	--	3	Spills, leaks, or improper handling or storage of photographic chemicals
Printer and Blueprint Shops	1	M	01S	8	Spills, leaks, or improper handling or storage of printing inks and chemicals
Repair Shops (Engine, Appliances, Etc.)	--	H	--	5	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Sand and Gravel Mining/Washing	--	M	--	3	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial					
Asphalt, Coal Tar, and Concrete Plants	--	M	--	2	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Hazardous Materials Storage	--	H	--	8	Spills, leaks, or improper handling or storage of hazardous materials
Machine/Metalworking Shops	--	H	--	8	Spills, leaks, or improper handling of solvents; metal tailings
RCRA TSDF Facilities	--	H	--	1	Spills, leaks, or improper handling or storage of hazardous wastes
Residential					
Fuel Oil Storage (at residences)	100+	M	01S, 02S, 03S	100+	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	100+	M	01S, 02S, 03S	100+	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	100+	M	01S, 02S, 03S	100+	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous					
Aboveground Storage Tanks	3	M	01S	11	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	100+	L	01S, 02S, 03S	100+	Microbial contaminants
Composting Facilities	1	L	01S	--	Storage and improper handling of organic material, animal waste, and runoff
Fire Training Facilities	1	M	01S	--	Improper use or storage of fuels and other chemicals
Large Quantity Hazardous Waste Generators	--	H	--	14	Spills, leaks, or improper handling or storage of hazardous materials and waste
Landfills and Dumps	1	H	01S	2	Seepage of leachate

Land Uses	Quantity Zone C's	Threat	Zone C Source ID #	Quantity Ipswich River Watershed	Potential Contaminant Sources*
Miscellaneous					
Military Facilities (Past And Present) Type: former NIKE Sites	2	H	01S, 03S	--	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump sites
NPDES Locations	1	L	01S	2	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	4	--	01S	57	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	02S	6	Spills, leaks, or improper handling or storage of deicing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	1	M	02S	4	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	2	M	01S, 02S	56	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains	1/100+	L	01S/02S	100+	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	3	M	01S, 02S, 03S	Several	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	20	H	01S, 02S	191	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	4	L	01S, 02S	125	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/ Recycling Stations	--	M	--	3	Improper management, seepage, and runoff of water contacting waste materials
Wastewater Treatment Plant/Collection Facility/ Lagoons	--	M	--	1	Improper handling or storage of treatment chemicals or equipment maintenance materials; improper management of wastewater
Water Treatment Sludge Lagoons	1	M	01S	1	Improper management of sludge and wastewater
<p>Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>					

4. Residential Land Uses – Approximately 80% of the combined watersheds consist of residential areas, of which a large portion is served by private septic systems, with the remainder being served by municipal sewerage. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

**When you fertilize the lawn,
Remember
you're not *just* fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

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- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

5. Transportation Corridors - Several major transportation corridors and other paved and unpaved local roads cross through the watersheds. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins. The steep topography of the watershed results in application of de-icing materials to protect public health and safety by keeping the roads passable.

Transportation Corridor Recommendations:

Work with communities within the combined watersheds to:

- ✓ Identify stormwater drains and the drainage system along transportation corridors.
- ✓ Work with the Towns and State to have catch basins inspected, maintained, and cleaned on a regular schedule.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

- ✓ Establish vegetated buffers along roads and parking areas to provide some filtration of contaminants.
- ✓ Encourage regular street sweeping. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.
- ✓ Conduct emergency drills to be ready for spills.
- ✓ Regularly inspect the watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ Work with the Massachusetts Highway Department to erect a suitable barrier on the portion of Route 1A that is adjacent to Wenham Lake.

6. Road and Maintenance Depots - Potential sources of contamination in state and municipal facilities can result from accidental dumping, spills, leaks, vehicle washing operations, or from wastewater treatment. Waste management and product storage pose the greatest threats with a wide variety of potentially harmful contaminants.

Road and Maintenance Depots Recommendations:

Work with communities within the combined watersheds to:

- ✓ Institute **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/neeat/muni/index.html>. Encourage road and maintenance depots to develop best management practices to insure proper salt storage, proper maintenance of facilities and good housekeeping practices.
- ✓ Adequately size salt pile structure to allow for the loading and unloading of salt within the structure. Review the Department of Environmental Protection’s Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.
- ✓ Encourage proper storage of materials at these facilities. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.

7. Presence of Oil or Hazardous Material Contamination Sites – The watersheds for Salem/Beverly and the Ipswich River contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0000230, 3-0000231, 3-0000235, 3-0003597, 3-0000008, 3-0001813, 3-0014088, 3-0011228, 3-0003711, 3-0014696, 3-0017065, 3-0019416, 3-0000168, 3-0001494, 3-0001505, 3-0001941, 3-0004485, 3-0006026, 3-0010212, 3-0014402, 3-0015046, 3-0016824, 3-0018425, 3-0000692, 3-0002363, 3-0002584, 3-0002804, 3-0004007, 3-0004481, 3-0004583, 3-0017390, 3-0001565, 3-0006062, 3-0012406, 3-0014805, 3-0018398, 3-0019352,

3-0013565, 3-0004670, 3-0018082, 3-0000471, 3-0000518, 3-0000625, 3-0000776, 3-0001268, 3-0001728, 3-0001916, 3-0001973, 3-0002889, 3-0003548, 3-0003766, 3-0004022, 3-0004170, 3-0012586, 3-0013922, 3-0014811, 3-0014814, 3-0015247, 3-0017097, 3-0019380 and 3-0019651. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

8. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the City of Beverly has a Watershed Protection Overlay District Zoning Ordinance that was adopted in 1990; however, the watershed towns do not have water supply protection controls that meet DEP’s Surface Water Protection regulations 310 CMR 22.20 (b) and (c). A Surface Water Supply Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply reservoirs.

Protection Planning Recommendations:

Work with communities within the combined watersheds to:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Encourage watershed towns to adopt controls that meet 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone A?	YES (Putnamville Reservoir)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials. To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements.
	NO (Wenham Lake, Longham Reservoir)	
Is the Zone A/ Emergency Planning Zone posted with "Public Drinking Water Supply" Signs?	YES	The Emergency Planning Zone for the Ipswich River Watershed is not posted Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply -related activities the only activities within the Zone A?	YES (Wenham Lake, Longham Reservoir)	Continue monitoring for non-water supply activities in Zone As.
	NO (Putnamville Reservoir)	Monitor prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20B and 22.20C?	NO	Work with the Planning Board and the Beverly City Council to compare land use controls to see that they meet current requirements of 310 CMR 22.20 (B) and 310 CMR 22.20 (C). Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Work with the Towns of Danvers, Topsfield and Wenham to include Salem/Beverly watersheds in their protection controls.
Planning		
Does the PWS have a local surface water protection plan?	NO	Develop a surface water supply protection plan. Follow "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	SOME	Currently, outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the Zone C.

- ✓ Continue to work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the towns, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Protection areas that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Emergency Planning Recommendations for Class B River Intakes

Prevention

Public water suppliers with a river source may take preventive measures to protect the source from unexpected releases. Here are some suggestions.

1. Title III (Emergency Planning and Community Right-to-Know) of the Superfund Amendments & Reauthorization Act (SARA) of 1986 required that each community **develop a comprehensive emergency response plan**. Suppliers should review the existing plan to ensure that water supply issues are satisfactorily addressed in the plan, that current response personnel and their correct telephone numbers are listed, and that the entire plan is regularly reviewed and updated by community officials.

The community plan, or a separate water supplier plan, should include copies of policies in the event of spills or releases; regulatory notification requirements such as what size spills are required to be reported, who to call, telephone numbers, and what information is required to be reported; map of intakes, tributaries, watershed boundaries, adjacent public wells, and locations of sites where spills or accidental releases could occur.

2. **Identify, map and distribute information** to local emergency responders regarding the locations of intakes on the river, tributaries, watershed boundaries, public wells adjacent to river; chemical use at municipal, state, and industrial facilities in the watersheds (contact Fire Dept., DEP); locations of stormwater drains and the locations of known dams in the event that they can be manipulated by authorized individuals for contaminant control.

The Fire Dept., Board of Health, Planning Board, Local Emergency Planning Committee (LEPC), DEP and others may have existing information to help with your work. SARA requires companies to work with the community's LEPC if they handle extremely hazardous chemicals in quantities above established thresholds.

3. **Develop a communication list** of contacts at upstream and downstream facilities, dams, as well as other public water suppliers on, or adjacent to, rivers. Notify owners and operators of these facilities about the location of your intake and request, in writing, that you be notified immediately in the event of a chemical spill or unexpected discharge. Take this opportunity to educate others about water supply protection.
4. **Provide comments** to municipal boards in other cities/towns in the watershed about proposed development, land use controls, Best Management Practices (BMPs) for stormwater flow into tributaries, and other issues to avoid future problems.
5. **Post signs** along major roads in watershed which direct the public to call "911" or other appropriate local number in case of spills. Be aware of accident-prone areas and transport routes of chemicals if possible.
6. **Educate** the public, local officials, Civil Defense, local emergency response team, and others about water supply protection issues. Educate businesses about toxic use reduction.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

7. **Conduct household hazardous waste collection days** and establish permanent collection sites, away from sensitive watershed areas, for used batteries, paints, motor oil, etc.
8. **Conduct drills**, in coordination with local/regional response teams, to test policies and procedures and to practice responding to various situations. Including businesses, local officials and staff, Fire Departments, Boards of Health, Civil Defense, school administration, and others in planning and implementing the drills will allow for several town or region-wide concerns to be addressed and tested at the same time, including: issuing health advisories, conducting neighborhood and/or school evacuations, and evaluating the town's communication system (both making responders aware of the emergency and issuing advisories to the public when necessary via television, radio, and other news media), equipment and emergency plan in general.
9. Critique the drills and **modify components** of the emergency response system as needed.

Responding to Emergencies

Drinking water supply professionals responding to local emergencies need to be adequately prepared and trained, and know their roles and responsibilities. Here are some suggestions.

1. **Know regulatory reporting requirements** of state and federal agencies. Know who to call, telephone numbers and what information to report.
2. **Know your role & responsibilities.** Have access to, and be familiar with, the emergency communication list, policies and procedures for emergency response; know when, and how, to safely handle spills or other events until first responders arrive on scene; know what steps to take to avoid drawing contaminants into the water supply system; be familiar enough with local watershed characteristics to provide incident commander with information and advice.

**When you wash your car in the
driveway,
Remember
you're not *just* washing your car in the
driveway.**



All the soap, suds, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

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3. **Provide training and materials to responding staff.** Water supply staff, including new employees, should be adequately trained, have access to appropriate materials (storm drain covers, absorbent pads, booms, etc.), up-to-date policies, procedures, and communication lists to perform tasks for which they are responsible.

Follow-up

Steps can be taken to ensure better preparedness in the event of future emergency situations. Here are some suggestions.

1. **Provide follow-up reports** to the public on the resolution of the situation.
2. **Share the information** learned from drills and real situations with others in order to better protect all public drinking water sources.

Section 4: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Current Land Uses and Source Protection:

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- The review of development plans in the City of Beverly and the Town of Wenham
- Conducting monthly stream monitoring throughout the watersheds that includes routine chemistry and microbiology
- Managing geese on Wenham Lake by keeping reservoir levels high during summer months

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Develop and implement a Surface Water Supply Protection Plan.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in watersheds and to cooperate on responding to spills or accidents.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or hazardous materials contamination site.
- ✓ Work cooperatively with Boards of Health to develop an inventory of septic systems in Hamilton, Topsfield, and Wenham.
- ✓ Work with businesses and others who have landscaped areas in the watersheds to encourage BMPs for the use of fertilizer and pesticide.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Continue to inspect the Zone A areas regularly, and when feasible, remove prohibited non-water supply activities.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects.

Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination

and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watersheds. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 5: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN SALEM/BEVERLY WATER SUPPLY PROTECTION AREAS AND IPSWICH RIVER WATERSHED

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
136046	SUN COMPANY, INC.	44 ENON ST	BEVERLY	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
				FUEL DISPENSER	FUEL DISPENSER STAGEII
136053	CENTERVILLE SERVICE	443 ESSEX ST	BEVERLY	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
				HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				FUEL DISPENSER	FUEL DISPENSER STAGEII
228294	GORDON COLLEGE	255 GRAPEVINE RD	BEVERLY	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
312333	MINUTEMAN PRESS	23 ENON ST	BEVERLY	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
357957	HESS	38 ENON ST	BEVERLY	FUEL DISPENSER	FUEL DISPENSER STAGEII
228294	GORDON COLLEGE	255 GRAPEVINE RD	WENHAM	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE MINOR
329861	WENHAM DEPARTMENT OF PUBLIC WORKS	91 GRAPEVINE RD	WENHAM	HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS NON-NOTIFIER IWW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
				DISCHARGE	
307945	GETTY 30715	ROUTE 125	ANDOVER	FUEL DISPENSER	FUEL DISPENSER
33003	MA DEPARTMENT OF PUBLIC WORKS	RTE 25 & PROSPECT ST	ANDOVER	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
35863	BOXFORD GULF	7 ELM ST	BOXFORD	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
31090	MASCONOMET REGIONAL HIGH SCHOOL	ENDICOTT RD	BOXFORD	HANDLER ----- GROUNDWATER DISCHARGE	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE ----- GROUNDWATER DISCHARGE
295264	BELLS CAMERA & VIDEO	184 CAMBRIDGE ST	BURLINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
35978	BONNIE BRITE CLEANERS	120 CAMBRIDGE ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
351657	BURLINGTON BOARD OF HEALTH	61 CENTER ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32943	NEAT N CLEAN DRY CLEANERS	228 CAMBRIDGE ST	BURLINGTON	PLANT	AIR QUALITY PERMIT
320034	SHELL	198 CAMBRIDGE ST	BURLINGTON	FUEL DISPENSER ----- HANDLER	FUEL DISPENSER ----- VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
53498	BURLINGTON TOWN OF	29 CENTER ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132598	HOGAN REGIONAL CENTER	450 MAPLE ST	DANVERS	HANDLER ----- HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE ----- VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
223242	MA DPW DANVERS DEPOT	485 MAPLE ST	DANVERS	HANDLER	BELOW HW REGULATED THRESHOLDS

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
367235	MOBIL	431 NEWBURY ST	DANVERS	FUEL DISPENSER	FUEL DISPENSER STAGEII
244046	NORTH SHORE COMMUNITY COLLEGE	1 FERNCROFT RD	DANVERS	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
178417	RONCO MACHINE CORP	370 ANDOVER ST	DANVERS	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131432	STUTTGART NORTHEAST	509 MAPLE ST	DANVERS	HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
				HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
364399	TOSCO EXXON	435 NEWBURY ST	DANVERS	FUEL DISPENSER	FUEL DISPENSER STAGEII
302941	BODYCOTE HOOVEN INC	11 OLD RIGHT RD	IPSWICH	TURA REPORTER	LARGE QUANTITY TOXICS USER
136528	CUMBERLAND FARMS	66 TURNPIKE RD	IPSWICH	FUEL DISPENSER	FUEL DISPENSER
329379	114 IMPORTS INC	234 SOUTH MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
371841	AMBIENT TEMPERATURE CORP	11 RIVER ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
31372	AUTOROLL MACHINE CORP	11 RIVER ST	MIDDLETON	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
215558	AVLSON CO THE	191 S MAIN ST	MIDDLETON	HANDLER	TRANSPORTER
278798	BOSTIK INC	211 BOSTON ST	MIDDLETON	TURA REPORTER	LARGE QUANTITY TOXIC USER
				HANDLER	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
				DISCHARGE	INDUSTRIAL WASTE WATER SURFACE DISCHARGE WATER MAJOR
				HANDLER	TREATMENT STORAGE DISPOSAL FACILITY RCRA HAZARDOUS WASTE
136094	BOUCHARDS AUTO SERVICE	212 MAPLE ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
				FUEL DISPENSER	FUEL DISPENSER STAGEII
1080	DANVERS WATER TREATMENT PLANT	30 LAKE ST	MIDDLETON	SURFACE DISCHARGE	SURFACE WATER MINOR
177524	EXXON CO USA	CORNER OF RTES 62 & 114	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
363425	FAST FREDDIES	265 SOUTH MAIN ST	MIDDLETON	FUEL DISPENSER	FUEL DISPENSER STAGEII
283702	FULLER POND VILLAGE CONDOMINIUMS	STONEY BROOK LANE	MIDDLETON	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE MAJOR

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
326168	J&S FINISH INC	17 LONERGAN RD	MIDDLETON	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
312313	JODYS QUIK PRINT	14 EAST ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
327120	JV MAX CORPORATION	29 SOUTH MAIN ST	MIDDLETON	FUEL DISPENSER	FUEL DISPENSER STAGEII
35318	LEE J T CONSTRUCTION INC	300 ESSEX ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
135310	MIDDLETON AEROSPACE CORPORATION	206 SOUTH MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
357923	MIDDLETON AUTO CLINIC INC	227 MAPLE ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
357684	MIDDLETON CLEANERS	232 MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
304351	MIDDLETON DEPARTMENT OF PUBLIC WORKS	195 NORTH MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
132760	MIDDLETON GOLF COURSE	S. MAIN ST RTE 114	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
39508	MIDDLETON LANDFILL	RIVER ST/DOVER ST	MIDDLETON	SOLIDWASTE LANDFILL	CHARGEABLE LANDFILL

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
30972	MIDDLETON MUNICIPAL LIGHT	S. MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
36594	MIDDLETON SQUARE EXXON	4 S. MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
39508	MIDDLETON TRANSFER STATION	11 NATSUE WAY OFF RIVER ST	MIDDLETON	TRANSFER STATION	SMALL TRANSFER STATION
25999	MIT BATES LINEAR ACCELERATOR	21 MANNING AVE	MIDDLETON	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
				HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
223307	MW GAS INC	73 NORTH MAIN ST	MIDDLETON	FUEL DISPENSER	FUEL DISPENSER STAGEII
257887	NORTH SHORE TECHNICAL HIGH SCHOOL	30 LOGBRIDGE RD	MIDDLETON	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131553	R & K PRECISION MACHINE INC	LOG BRIDGE RD	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
367829	RAYS AUTO SERVICE	73 NORTH MAIN ST	MIDDLETON	HANDLER	NON-NOTIFIER HW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
6563	RICHARDSON FARMS INC	156 SOUTH MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
357373	SANDYS MARKET	223 MAPLE ST	MIDDLETON	FUEL DISPENSER	FUEL DISPENSER STAGEII
				HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
302738	SPARKLE SPOT CAR WASH	107 FOREST ST	MIDDLETON	APPROVED	INDUSTRIAL WASTE WATER HOLDING TANK
321352	TEDESCHI FOOD SHOP	4 SOUTH MAIN ST	MIDDLETON	FUEL DISPENSER	FUEL DISPENSER STAGEII
323626	VERIZON NEW ENGLAND INC	35 VILLAGE RD	MIDDLETON	PLANT	AQ NATURAL MINOR W/ PTE<MAJ & >50% OF MAJ
298535	WALGREENS	230 SOUTH MAIN ST	MIDDLETON	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
361645	WATSON BROTHERS INC	6 BIRCH RD	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
193818	CHEMLAWN SERVICES CORP	94 FLAGSHIP DR	NORTH ANDOVER	HANDLER	VERY SMALL QUANTITY GENERATOR
131079	EAGLE TRIBUNE PUBLISHING COMPANY	100 TNPk ST	NORTH ANDOVER	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
131082	EASTPRINT INC	350 WILLOW ST S	NORTH ANDOVER	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
296396	FLAGSHIP PRESS INC	150 FLAGSHIP DR	NORTH ANDOVER	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
135925	GETTY 30561	785 TURNPIKE ST	NORTH ANDOVER	FUEL DISPENSER	FUEL DISPENSER
28748	MASSACHUSETTS ELECTRIC COMPANY	1101 TURNPIKE ST	NORTH ANDOVER	FUEL DISPENSER	FUEL DISPENSER
				HANDLER	SMALL QUANTITY GENERATOR
				HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
362375	MORTON INTERNATIONAL INC	60 WILLOW ST	NORTH ANDOVER	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
				HANDLER	LARGE QUANTITY GENERATOR
321312	NORTH ANDOVER PRIME	1725 TURNPIKE ST	NORTH ANDOVER	FUEL DISPENSER	FUEL DISPENSER
327742	7 ELEVEN 30238	237 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
52711	ADDISON WESLEY CO	1 JACOB WAY	NORTH READING	PLANT	AIR QUALITY PERMIT
311762	ADVANCED PHOTO INC	4 LOWELL RD	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
251722	BARD MEDISYSTEMS	87 CONCORD ST	NORTH READING	HANDLER	BELOW HAZARDOUS WASTE REG LEVELS
				TURA REPORTER	BELOW TOXICS USE REDUCTION REG LEVELS
300381	BOBCAT OF BOSTON INC	20 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
134192	CAROUSEL CLEANERS	265 MAIN ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
29369	CENTRE TRUCKING SERVICES INC	81 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
34893	CHASE TRANSMISSIONS	90 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
315041	COMMONWEALTH OIL INC	290 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
135959	DB MART 34	231 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
281186	DOUGLAS DESIGN AND CONSTRUCTION INC	126 MAIN ST UNIT 7	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
134191	DYAR SALES & MACHINERY CO	75 CONCOR. ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
367739	EXXONMOBIL OIL CORP	160 PARK ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
29166	GALLANT ELECTRIC MOTOR SERVICE	206 NORTH ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
525	GREENBRIAR ESTATES CONDOMINIUMS	MAIN ST & RTE 28	NORTH READING	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE
35155	HEFFRON MATERIALS	68 WINTER ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
293945	HILLVIEW COUNTRY CLUB	149 NORTH ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
34380	HONDA BARN	260 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
31903	JOES SERVICE CENTER	31 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
121254	LILY TRUCK LEASING	84 CONCORD ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
135961	M&H AUTO SERVICE	1 WASHINGTON ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
33375	MA ONE AUTO BODY	340 MAIN ST RTE 28	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
297362	MEADOWVIEW HEALTHCARE NURSING CENTER	134 NORTH ST	NORTH READING	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE
341296	MICHAELS AUTOBODY	126 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
	MOBIL 11939	MAIN STREET	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
131087	MSM INDUSTRIES INC	60 CONCORD ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
132775	NEW ENGLAND MOTOR FREIGHT INC	90 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
31816	NIXDORF COMPUTER CORP	80 MAIN ST RTE 28	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327420	NORTH READING DEPARTMENT OF PUBLIC WORKS	166 CHESTNUT ST	NORTH READING	HANDLER ----- FUEL DISPENSER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE ----- FUEL DISPENSER
329093	NORTH READING FIRE DEPARTMENT	152 PARK ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
317950	NORTH READING HIGH SCHOOL	PARK ST	NORTH READING	PLANT	AIR QUALITY PERMIT
31169	NORTH READING HONDA	49 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
328706	NORTH READING SCHOOL DEPARTMENT	191 PARK ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327939	NORTH READINGS BEST	144 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
312394	NORTH SHORE PRINTING INC	281 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
226966	PACETTI CORPORATION	4 HALLBERG PARK	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
31554	PARAMOUNT AUTO CENTER INC	324 MAIN ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
887	PARK COLONY CONDOMINIUM TRUST	36-46 MAIN ST	NORTH READING	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE
31861	PAULS NORTH READING AUTO BODY INC	240 PARK ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
178012	QUICK MART NUMBER 30238	237 MAIN ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
36091	READING MOWER SERVICE	90 MAIN ST BAY 13	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132160	RICHARDSONS SERVICE STA	21 WINTER ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
330270	ROUTE 28 MOTORS EXCHANGE	137 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
371811	SERVIS CLEANERS	20A MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327759	SPENCER COMPANY	CENTRAL ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
178106	STAR MARKETS COMPANY INC	265 MAIN ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
365930	STOP & SHOP GAS 68	97 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
135981	SUN COMPANY INC	142 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
339694	SUNBRIDGE CARE & REHABILITATION CENTER	134 NORTH ST	NORTH READING	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE
38031	SUNOCO SERVICE STATION	146 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
321780	TERADYNE INC	500 RIVER PARK	NORTH READING	TURA REPORTER	LARGE QUANTITY TOXICS USER
376387	TERADYNE INC	300 RIVERPARK	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
33770	THOMAS DAN AUTO BODY INC	209 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37855	TRAILBLAZER KAWASAKI INC	49 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
311325	US POSTAL SERVICE MIDDLESEX ESSEX P&DC	76 MAIN ST	NORTH READING	GROUNDWATER DISCHARGE HANDLER	GROUNDWATER DISCHARGE VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
38000	VALVOLINE INSTANT OIL CHANGE	216 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
319070	VERIZON NEW ENGLAND INC	74 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325148	WALMART #2660	72 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
333802	WILLIAMS AND PARTNERS	66 CONCORD ST	NORTH READING	HANDLER FUEL DISPENSER HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE FUEL DISPENSER VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
365934	7 ELEVEN 32952	23 NEWBURY ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
131122	AGGREGATE INDUSTRIES NORTHEAST REGION	55 RUSSELL ST	PEABODY	HANDLER HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE SMALL QUANTITY GENERATOR WASTE OIL/PCBS
356681	ANTOINES SERVICE	480 LOWELL ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
356681	ANTOINES SERVICE INC	480 LOWELL ST	PEABODY	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
364207	ATLANTIC WASTE SYSTEMS NORTH	295 FOREST ST	PEABODY	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
317120	BILLS AUTOMOTIVE REPAIR	153 NEWBURY ST	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
323087	BOSTON FENCE & SUPPLY COMPANY	128 NEWBURY ST	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
288793	FILA RESEARCH AND DEVELOPMENT CENTER	83 PINE ST	PEABODY	PLANT	BELOW AQ REGULATED THRESHOLDS
136103	GAETA AUTOMOTIVE SERVICES INC	153 NEWBURY ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
296784	GAETA ENTERPRISES INC	14 NEWBURYPORT TNPK	PEABODY	DISCHARGE	INDUSTRIAL SEWER WASTE WATER
				HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
136116	GAETA TOWING SERVICES INC	136 NEWBURY ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
136118	J & H AUTO & TRUCK REPAIR	129 NEWBURY ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
27725	KUSTOM COACH WORKS	134R NEWBURY ST RTE 1	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
136117	LAKE STREET CITGO INC	26 LAKE ST	PEABODY	FUEL DISPENSER ----- HANDLER	FUEL DISPENSER STAGEII ----- SMALL QUANTITY GENERATOR WASTE OIL/PCBS
317605	PEABODY DEPARTMENT OF PUBLIC SERVICE	38 BUTTERNUT AVE	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
33798	REDI RITE AUTO BODY	80 NEWBURY ST	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
325682	SHELL 137823	468 LOWELL ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
325681	SHELL 137824	14 NEWBURYPORT TPKE	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
262657	STADIUM MOBIL MART	545 LOWELL ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
337472	SUNOCO 0495-7957	144 NEWBURY ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
364281	WASTE SUPPORT SERVICES LLC	300 FOREST ST	PEABODY	HANDLER ----- HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE ----- VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
32694	MA DEPARTMENT OF PUBLIC WORKS	9 CAUSEWAY RD	READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
32694	MA HIGHWAY SITE 76	9 CAUSEWAY RD	READING	FUEL DISPENSER	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
367789	MOBIL 10534	1330 MAIN ST	READING	FUEL DISPENSER	FUEL DISPENSER
209957	SANBORN HILL SERVICE STATION	1462 MAIN ST	READING	FUEL DISPENSER	FUEL DISPENSER
25929	CEDAR CREST PRECISION	44R MAIN ST	TOPSFIELD	HANDLER	BELOW HW REGULATED THRESHOLDS
				PLANT	BELOW AQ REGULATED THRESHOLDS
				TURA REPORTER	BELOW TUR REGULATED THRESHOLDS
25929	CEDAR CREST PRECISION	44R MAIN ST	TOPSFIELD	DISCHARGE	BELOW IWW REGULATED THRESHOLDS
327047	COUNTRY MOTORS	107 IPSWICH RD	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
29672	DAWES ENGINE GENERATOR CO INC	224 BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
336425	ENON MICROWAVE INC	422 A BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
28958	EVANS IND INC	249 BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
131209	FAIRVIEW MACHINE CO	427 BOSTON ST	TOPSFIELD	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
295067	MASCONOMET HEALTHCARE CENTER DBA	123 HIGH ST	TOPSFIELD	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE MAJOR
358479	MBD OUTDOOR POWER EQUIPMENT INC	224 BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
258019	METRO CENTERLESS GRINDING	426A BOSTON ST	TOPSFIELD	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
134365	NEW MEADOWS AUTO REPAIR	86 CENTRAL ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
205511	ROUTE ONE TIRE	234 BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
209980	SILVA TIRE COMPANY	158 HAVERHILL RD	TOPSFIELD	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
				HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
328296	TOPSFIELD TIRE & LUBE	368 BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
134363	THE TRANSLATORS INC	458 BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
293430	TURNPIKE SERVICES II INC	368 BOSTON ST	TOPSFIELD	FUEL DISPENSER	FUEL DISPENSER STAGEII

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
328601	VIP CLEANERS II INC	20 REAR MAIN ST	TOPSFIELD	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
132254	AAMCO TRANSMISSIONS	611 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131607	AGFA DIVISION, BAYER CORPORATION	200 BALLARDVALE ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
377210	AGGREGATE INDUSTRIES	900 SALEM ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
				TURA REPORTER	LARGE QUANTITY TOXICS USER
32439	ALS SERVICE CENTER	103 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131268	AMETEK AEROSPACE PRODUCTS, INC.	50 FORDHAM RD	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
131259	ANALOG DEVICES INC	804 WOBURN ST	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
				TURA REPORTER	LARGE QUANTITY TOXICS USER
114468	ANTONS CLEANERS INC	240 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
323732	APPLIED SCIENCE & TECHNOLOGY	90 INDUSTRIAL WAY	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
357200	AZORES CORP	260 FORDHAM RD	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327930	B & L ENTERPRISES	880 MAIN ST	WILMINGTON	PLANT	AIR QUALITY PERMIT

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
365790	BENEVENTO ASPHALT CORP	900 SALEM ST	WILMINGTON	PLANT	RES APPLICATION APPROVED
				PLANT	AIR QUALITY PERMIT
371015	BROOKS PHARMACY 582	208 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
36008	BROWNS CUSTOM AUTO BODY	210 ANDOVER ST UNIT 12	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
933	BUTTERS ROW WTP	TOWN HALL, WATER DEPT	WILMINGTON	SURFACE DISCHARGE	SURFACE DISCHARGE WATER DISCHARGE
28543	CAIN FRED F CHRYSLER PLYMOUTH	580 MAIN ST	WILMINGTON	DISCHARGE	AIR QUALITY PERMIT
293634	CAR MART INC	275 MAIN ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
134424	CHARLIES AUTO BODY	611 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
116704	COOPER INDUSTRIES INC	226 ANDOVER ST	WILMINGTON	TURA REPORTER	BELOW TOXICS USE REDUCTION REG LEVELS
249734	CVS #1845	240 MAIN ST	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
338875	DEE RAY INC	919 MAIN ST	WILMINGTON	DISCHARGE	MWRA SEWER CONNECTION
132251	DIAMOND CRYSTAL SALT CO	10 BURLINGTON AVE	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
335016	DR SEVAK ABRAHAMIAN DDS	384 MIDDLESEX AVENUE	WILMINGTON	HANDLER	AIR QUALITY PERMIT
26009	DUPONT E I DENEMOURS & CO INC	1 CORNELL PL	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
376134	DUPONT PHOTONICS TECHNOLOGIES	100 FORDHAM RD	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
900	DYNAMICS RESEARCH CORP	60 CONCORD ST	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
132256	E T M MFG	21 CONCORD ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
306387	ENGLEHARD CORPORATION	201 BALLARDVILLE ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
30080	F & R AUTO SUPPLY CORP	160 LOWELL ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32345	FEDERAL EXPRESS CORP	10 CORNELL PL	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32267	FIRESTONE STORE	496 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
323173	FISHMAN TRANSDUCERS	340D FORDHAM RD	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
345501	FLAGSHIP HYUNDAI INC	220 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
311484	G&G PRINTING COMPANY	214 ANDOVER ST #7	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
191962	GETOV MACHINE INC	150 WEST ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
335097	GFI BIG JOE LLC	1 BURLINGTON AVENUE	WILMINGTON	PLANT	AIR QUALITY PERMIT
126548	GIBBS OIL 1595	342 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
319131	GLENS FALLS LEHIGH CEMENT COMPANY	90 EAMES ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
134423	HAMPSHIRE PRESS INC THE	900 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
336596	HEFFRONS AUTOMOTIVE	603 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
126538	HESS STATION 21206	273 MAIN ST	WILMINGTON	FUEL DISPENSER ----- HANDLER	FUEL DISPENSER ----- VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
31409	HIGH TECH MACHINE & TOOL INC	218 ANDOVER ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
36358	IDEAL SERVICE RD	210 ANDOVER ST BAY 20	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
334924	INDUSTRIAL TOOL REPAIR CORPORATION	382 MIDDLESEX AVENUE	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
357434	INTELLISENSE CORPORATION	36 JONSPIN RD	WILMINGTON	PLANT	AIR QUALITY PERMIT
134414	J J T ENGINEERING INC	319 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
126549	JIMMYS GARAGE INC	945 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
10461	KIRKWOOD TECHNICAL PUBLICATIONS	904 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
131274	KOCH MEMBRANE SYSTEMS INC	850 MAIN ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
301506	LARRYS OIL & BURNER SERVICE	880 MAIN ST	WILMINGTON	FUEL DISPENSER ----- HANDLER	FUEL DISPENSER ----- VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
31850	LOCHART MACHINE CO	287 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
39914	MAPLE MEADOW LANDFILL PROJECT	923 MAIN ST	WILMINGTON	SOLIDWASTE LANDFILL	LANDFILL
215608	MARTIN MARIETTA CORP	50 FORDHAM RD	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
367888	MOBIL 11733	318 LOWELL ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
370415	NEORESINS INC	730 MAIN ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
370415	NEORESINS INC	730 MAIN ST	WILMINGTON	HANDLER ----- PLANT	LARGE QUANTITY GENERATOR OF HAZ WASTE ----- AIR QUALITY PERMIT
334914	NORTH WILMINGTON SERVICE INC	360 MIDDLESEX AVE	WILMINGTON	HANDLER ----- FUEL DISPENSER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS ----- FUEL DISPENSER
131605	OLIN CORPORATION	51 EAMES ST	WILMINGTON	HANDLER ----- DISCHARGE	LARGE QUANTITY GENERATOR OF HAZ WASTE ----- INDUSTRIAL WASTE WATER TO SEWER
363566	PACIFIC SCIENTIFIC CORPORATION	110 FORDHAM RD	WILMINGTON	PLANT	AIR QUALITY PERMIT
132255	PEPSI COLA BOTTLING GROUP	111 EAMES ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
280472	PRECISION GRAPHICS	3A LOPEZ RD	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
327059	RACHEL A PERLITSH DMD	25 LOWELL ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132847	REGIONAL HEALTH CENTER	500 SALEM ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
341505	ROUTE 38 GAS & SERVICE	603 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
134419	SHEA CONCRETE PRODUCTS INC	773 SALEM ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325894	SHELL 137892	586 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
325893	SHELL 137893	361 MIDDLESEX AVE	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
373667	SILVER LAKE DENTAL	96 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
306507	SIR SPEEDY PRINTING 81710	609 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
372031	SMART MODULAR TECHNOLOGIES	7 LOPEZ RD	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
35575	SMITH JR ARTHUR R INC	214 ANDOVER ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
117230	STAFFORD MANUFACTURING CORP	256 ANDOVER ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
				HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37314	STRAIGHTLINE AUTO BODY INC	210 ANDOVER ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131254	SURFACE COATING INC	100 EAMES ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
131265	TEXTRON SYSTEMS CORPORATION	201 LOWELL ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131267	THERMO ELECTRON TECOMET	115 EAMES ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
364503	TOSCO CORP	205 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
210017	TOWN MARKET CITGO	490 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
37327	U HAUL CENTER OF WILMINGTON	687 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
294759	VILLAGE CLEANERS	211 LOWELL ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
215600	WATERS PRINTING CO INC	12 WALTHAM ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
				PLANT	AIR QUALITY PERMIT
308853	WILMINGTON DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
				FUEL DISPENSER	FUEL DISPENSER
38283	WILMINGTON FABRICATORS INC	235 ANDOVER ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

UNDERGROUND STORAGE TANKS WITHIN SALEM/BEVERLY WATER SUPPLY PROTECTION AREAS AND IPSWICH RIVER WATERSHED

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
BEVERLY TEXACO	44 DODGE ST	BEVERLY	GAS STATION	3
CENTERVILLE SERVICE CENTER	443 ESSEX ST	BEVERLY	GAS STATION	4
GENERAL AVIATION SERVICES TANK	HENDERSON RD	BEVERLY	AIRPORT	1
GTE SERVICE CORP	HENDERSON RD	BEVERLY	AIRCRAFT OWNER	3
HESS	38 ENON ST	BEVERLY	GAS STATION	3
SEWER PUMPING STATION	END OF ROBINSON RD	BEVERLY	MUNICIPAL	1
GASOLINE MERCHANTS INC	SALEM ST & ROUTE 125	ANDOVER	GAS STATION	3
BOXFORD COMMUNITY STORE INC	7 ELM ST	BOXFORD	GAS STATION	2
BURLWOOD REALTY CORP	11 GRANT AVE	BURLINGTON	OTHER	1
SHELL SERVICE STATION #137722	198 CAMBRIDGE ST	BURLINGTON	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
TOWN OF BURLINGTON	29 CENTER ST	BURLINGTON	MUNICIPAL	2
7-ELEVEN	237 MAIN ST	NORTH READING	GAS STATION	1
JOHN M ROSS & SON INC	50 BUXTON RD	DANVERS	CEMETERY	1
MOBIL #310	431 NEWBURY ST	DANVERS	GAS STATION	4
NORTH SHORE RADIOLOGICAL ASSOC	344 ANDOVER ST	DANVERS	OTHER	1
TOSCO EXXON #2634624	435 NEWBURY ST	DANVERS	GAS STATION	3
CUMBERLAND FARMS #2092	66 TURNPIKE RD	IPSWICH	GAS STATION	3
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	21
LOU'S SERVICE CENTER	223 MAPLE ST	MIDDLETON	GAS STATION	2
M W GAS	73 N MAIN ST	MIDDLETON	GAS STATION	3
PUMP N PANTRY	265 S MAIN ST	MIDDLETON	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
RICHDALE STORE #73	28 S MAIN ST	MIDDLETON	GAS STATION	3
TOSCO EXXON #2705807	4 S MAIN ST	MIDDLETON	GAS STATION	3
A L PRIME ENERGY INC	1725 TURNPIKE RD	NORTH ANDOVER	GAS STATION	3
GETTY STATION #30561	785 TURNPIKE ST	NORTH ANDOVER	GAS STATION	2
MASSACHUSETTS ELECTRIC CO	1101 TURNPIKE ST	NORTH ANDOVER	UTILITIES	2
7-ELEVEN	237 MAIN ST	NORTH READING	GAS STATION	2
BOBCAT OF BOSTON INC	20 CONCORD ST	NORTH READING	VEHICLE DEALER	1
LILY TRUCK LEASING CORP	84 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	2
M H AUTO SERVICE INC	1 WASHINGTON ST	NORTH READING	GAS STATION	3
MOBIL	160 PARK AVE	NORTH READING	GAS STATION	3
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
NORTH READING'S BEST	142 MAIN ST	NORTH READING	GAS STATION	3
NORTH READING TEXACO	231 MAIN ST	NORTH READING	GAS STATION	3
ROADWAY EXPRESS INC	95 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	2
TEMPLE OIL SERVICE	290 MAIN ST	NORTH READING	GAS STATION	2
THOMSON COUNTRY CLUB	20 ELM ST	NORTH READING	OTHER	2
ANTOINES SERVICE INC	480 LOWELL ST	PEABODY	GAS STATION	3
GAETA TOWING SERVICES INC	136 NEWBURY ST	PEABODY	GAS STATION	2
JHK INC - J & H AUTO/TRUCK REPAIR	129 NEWBURY ST	PEABODY	GAS STATION	2
LAKE STREET CITGO	26 LAKE ST	PEABODY	GAS STATION	4
SHELL SERVICE STATION 22060860206	468 LOWELL ST	PEABODY	GAS STATION	5
SHELL SERVICE STATION 22060860404	14 NEWBURYPORT TURNPIKE	PEABODY	GAS STATION	4

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
STADIUM MOBIL MART	545-547 LOWELL ST	PEABODY	GAS STATION	5
SUNOCO #0495-7957	144 NEWBURY ST	PEABODY	GAS STATION	6
MASS DPW MAINT DEPOT	CAUSEWAY RD	READING	STATE	2
MOBIL	1330 MAIN ST	READING	GAS STATION	5
READING GLOBAL	1337 MAIN ST	READING	GAS STATION	3
SANBORN HILL SERVICE STATION	1462 MAIN ST	READING	GAS STATION	3
SILVA TIRE DEPOT INC	158 HAVERHILL RD	TOPSFIELD	GAS STATION	3
TOPSFIELD POLICE DEPT	210 BOSTON ST	TOPSFIELD	OTHER	1
TURNPIKE SERVICES II INC	368 BOSTON ST	TOPSFIELD	GAS STATION	4
TOWN OF WENHAM HIGHWAY DEPT.	91 GRAPEVINE RD	WENHAM	MUNICIPAL	2
BELL ATLANTIC	408 MAIN ST	WILMINGTON	UTILITIES	1

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	MUNICIPAL	1
DYNAMICS RESEARCH CORP	50 CONCORD ST	WILMINGTON	OTHER	1
EXXONMOBIL OIL CORPORATION	316 LOWELL ST	WILMINGTON	GAS STATION	4
FRED'S SERVICE CENTER	324 MAIN ST	WILMINGTON	GAS STATION	1
HESS STATION	273 MAIN ST	WILMINGTON	GAS STATION	3
JOE BARRY OIL INC	312 MAIN ST	WILMINGTON	PETROLEUM DISTRIBUTOR	3
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	6
R & V REALTY TRUST	360 MIDDLESEX AVE	WILMINGTON	GAS STATION	3
RT 38 GAS AND SERVICE	603 MAIN ST	WILMINGTON	GAS STATION	4
SHELL SERVICE STATION	361 MIDDLESEX AVE	WILMINGTON	GAS STATION	4
SHELL SERVICE STATION	586 MAIN ST & LOWELL	WILMINGTON	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
TEXTRON SYSTEMS CORP	201 LOWELL ST	WILMINGTON	INDUSTRIAL	3
TOWN MARKET CITGO	490 MAIN ST	WILMINGTON	GAS STATION	3

FOR MORE INFORMATION ON UNDERGROUNDWATER DISCHARGE STORAGE TANKS, VISIT THE MASSACHUSETTS DEPARTMENT OF FIRE SERVICES WEB SITE: [HTTP://WWW.STATE.MA.US/DFS/UST/USTHOME.HTM](http://www.state.ma.us/dfs/ust/usthome.htm)

NOTE: THIS APPENDIX INCLUDES ONLY THOSE FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA(S) THAT MEET STATE REPORTING REQUIREMENTS AND REPORT TO THE APPROVED APPROPRIATE AGENCIES. ADDITIONAL FACILITIES LOCATED WITHIN THE WATER SUPPLY PROTECTION AREA(S) SHOULD BE CONSIDERED IN LOCAL DRINKING WATER SOURCE PROTECTION PLANNING.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Salem/Beverly Water Supply Protection Areas and Ipswich River Watershed

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0000230	L P Henderson Road	Beverly	Oil
3-0000231	L P Henderson Road	Beverly	Oil
3-0000235	L P Henderson Road	Beverly	--
3-0003597	38 Enon Street	Beverly	--
3-0000008	Andover Bypass Rte 125	Andover	--
3-0001813	Route 125 North Andover Bypass	Andover	Oil
3-0011228	4 Brookfield Rd	Burlington	Oil
3-0003711	200 North St	Danvers	Oil

RTN	Release Site Address	Town	Contaminant Type
3-0014696	200 North St	Danvers	Hazardous Material
3-0017065	562 Maple St	Danvers	Oil and Hazardous Material
3-0001494	Boston St	Middleton	Oil
3-0001505	265 South Main St	Middleton	Oil
3-0001941	234 South Main St	Middleton	Oil
3-0004485	North Main St Adj I95	Middleton	Oil
3-0006026	24 Hilldale Ave	Middleton	Oil
3-0010212	81 North Main St	Middleton	Oil and Hazardous Material
3-0014402	29 South Main St	Middleton	Oil
3-0015046	North Main St	Middleton	Oil
3-0016824	6-12 Birch Rd	Middleton	Oil
3-0000692	60 Concord St	North Reading	--
3-0002363	95 Concord St	North Reading	Oil
3-0002584	70 Concord St	North Reading	--
3-0002804	5 Hallberg Park	North Reading	--
3-0004007	Cedar St	North Reading	Oil
3-0004481	1 Boxwood Rd	North Reading	Oil
3-0017390	80 Concord St	North Reading	Hazardous Material
3-0001565	144 Newbury St	Peabody	Oil
3-0006062	6 Bow St	Peabody	--
3-0014805	104 Newbury St	Peabody	Oil
3-0019352	128 Newbury St	Peabody	Hazardous Material
3-0013565	Causeway St/Ma Hwy Dept	Reading	Oil and Hazardous Material
3-0004670	234 Boston Rd	Topsfield	Oil
3-0018082	210 Boston St	Topsfield	Oil
3-0000471	51 Eames St	Wilmington	Oil
3-0000518	50 Fordham Rd	Wilmington	Oil

RTN	Release Site Address	Town	Contaminant Type
3-0000625	I-93 Lowell St	Wilmington	--
3-0000776	324 Main St	Wilmington	--
3-0001728	945 Main St	Wilmington	Oil
3-0001916	101 Main St	Wilmington	Oil
3-0001973	804 Woburn St	Wilmington	Oil
3-0002889	273 Main St	Wilmington	--
3-0003548	603 Main St	Wilmington	--
3-0003766	100 Ainsworth Rd	Wilmington	Oil
3-0004022	103 Main St	Wilmington	--
3-0004170	319a Andover St	Wilmington	Oil
3-0012586	586 Main St	Wilmington	Oil
3-0013922	312 Main St	Wilmington	Oil
3-0014811	315-319 Main St	Wilmington	Hazardous Material
3-0014814	255 Andover St	Wilmington	Hazardous Material
3-0015247	1 Burlington Ave	Wilmington	Hazardous Material
3-0017097	80 Industrial Way	Wilmington	Hazardous Material
3-0019380	80 Industrial Way	Wilmington	Hazardous Material
3-0019651	212 Main St	Wilmington	Oil and Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Salem/Beverly Water Supply Board

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Salem/Beverly Water Supply Board
<i>PWS Address</i>	Arlington Street
<i>City/Town</i>	Beverly, Massachusetts 01915
<i>PWS ID Number</i>	3030001
<i>Local Contact</i>	Thomas Knowlton
<i>Phone Number</i>	(978) 922-2521

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

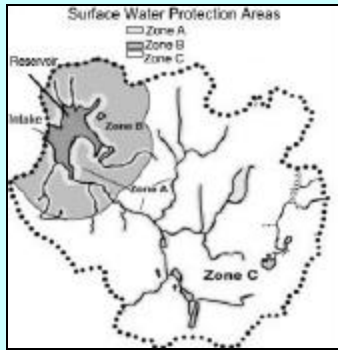
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Emergency Planning Recommendations for Class B River Intakes
4. Source Water Protection
5. Appendices

Section 1: Description of the Water System

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Surface Water Sources

Source Name	Source ID #	Susceptibility
Wenham Lake	3030001-01S	High
Longham Reservoir	3030001-02S	High
Putnamville Reservoir	3030001-03S	High
Ipswich River	3030001-04S	High

The Salem/Beverly Water Supply Board (Salem/Beverly) maintains and operates four public water supply sources. All of Salem/Beverly's water supplies are located within the Ipswich River basin. The reservoirs for Salem/Beverly are located within three separate water supply protection areas, with Wenham Lake (3030001-01S) being in Beverly and Wenham; Longham Reservoir (3030001-02S) is entirely in Wenham; and Putnamville Reservoir (3030001-03S) being entirely in Danvers. The intake for the Ipswich River (3030001-04S) is in Topsfield, with the canal being in Wenham.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Class B Drinking Water Sources

There are twelve Class B drinking water sources on rivers in Massachusetts, eleven in the urbanized northeast and one in the western part of the State. Three of these sources are located on the Ipswich River. The large watersheds and historically urbanized land uses associated with major rivers makes source protection a challenge at the Class B sources.

A Class B water body source such as the Ipswich River does not have Zone A, B and C protection areas, as do Class A water body sources. For the purposes of the SWAP assessments, a 400 foot setback area along the river and all feeder streams has been delineated for Class B water body sources that is referred to as an "Emergency Planning Zone". Land uses and activities within this zone are of particular concern for source protection and emergency planning because of their proximity to the water supply.

River drinking water sources are particularly susceptible to spills and accidental releases from public and private discharges; accidents related to vehicles, railroads, airports, boats; utility easements; fixed site releases at industrial and public facilities; inappropriate use of pesticides and fertilizers; improper disposal of hazardous household waste; and illegal dumping of a variety of substances.

This assessment has been conducted on the watershed area upstream of the Salem/Beverly intake. In addition, DEP has delineated a 400-foot emergency planning zone (shown on the GIS map that accompanies this report) adjacent to the river and its tributaries for the purpose of this assessment.

Glossary

Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 2: Land Uses in the Protection Areas

The watersheds for the Salem/Beverly reservoirs and Ipswich River intake are primarily a mixture of forest and residential use, with a small portion consisting of agricultural, commercial, and industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

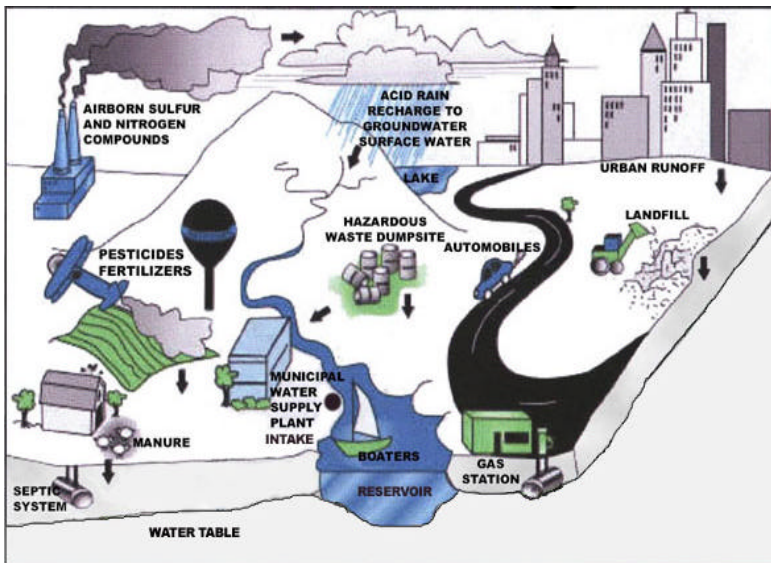
Key Land Uses and Protection Issues include:

1. Activities in Zone A and Emergency Planning Zone
2. Chemical and Hazardous Materials Manufacture, Storage and Use
3. Agricultural Activities
4. Residential Land Uses
5. Transportation Corridors
6. Road and Maintenance Depots
7. Oil or Hazardous Material Contamination Sites
8. Comprehensive Surface Water Protection Planning

The ranking of susceptibility to contamination for Wenham Lake, Longham Reservoir, Putnamville Reservoir, and the Ipswich River watersheds are high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone A and Emergency Planning Zone - A Zone A for a reservoir includes all areas within 400 feet of the reservoir shore line and within 200 feet of either side of all streams and feeder ponds that flow into the reservoir. The Emergency Planning Zone is a 400 foot setback on either side of the river and all tributaries to a Class B river intake. Land use activities within a Zone A

or Emergency Planning Zone may have an impact on surface water sources. Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and, un-permitted and unauthorized activities. Also, wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.



MODIFIED FROM © 2000 The Groundwater Foundation. Illustrated by C. Mansfield, The Groundwater Foundation

Figure 1: Sample watershed with examples of potential sources of contamination

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Class B River Intakes

Class B water sources do not have Zone A, B and C protection areas as the Class A sources do. For the purposes of this report, an "Emergency Planning Zone" has been delineated. The **Emergency Planning Zone** is the land area within 400 feet of both sides of the river including all tributary streams and surface water bodies.

Zone A Recommendations:

Work with communities within the combined watersheds to:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A and Emergency Planning Zone should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.
- ✓ Identify stormwater drains and the drainage system along transportation corridors. Work to better manage stormwater by pre-treating contaminated stormwater and/or redirecting stormwater outside of the Zone A and Emergency Planning Zone.

- ✓ Continue your efforts to protect these areas and to monitor and review activities within the Zone A and Emergency Planning Zone.

2. Chemical and Hazardous Materials Manufacture, Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs). Although many facilities within the watershed use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.
- ✓ Continue monitoring water quality in the Ipswich River.
- ✓ Continue to plan and prepare for spills by communicating with municipalities and facilities in the Ipswich River watershed, and by conducting drills.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

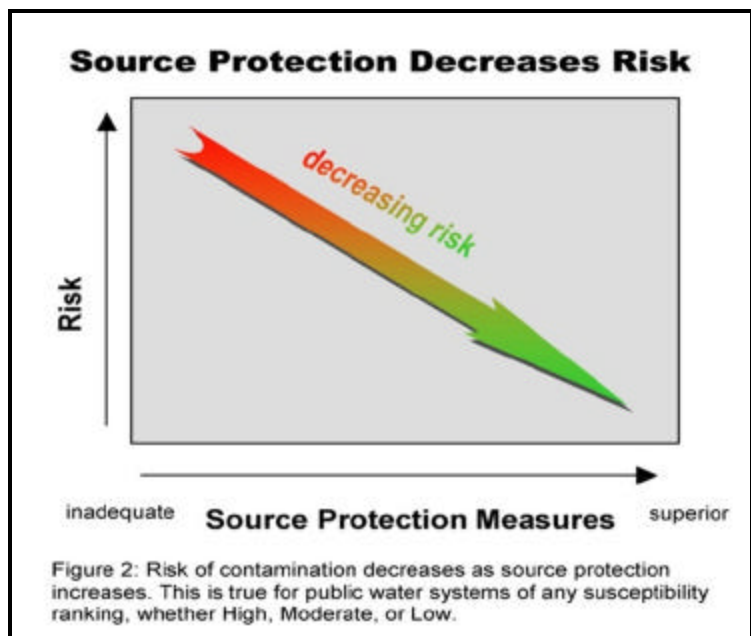
3. Agricultural Activities – Agricultural land uses (cropland, landscape operations, and nurseries) comprise about 7% of the combined watersheds. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, underground and aboveground storage tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills. Agricultural activities can also be a potential source of microbial contamination from improper manure management.

Agricultural Recommendations:

Work with communities within the combined watersheds to:

- ✓ Work with farmers to make them aware of the water supply and to encourage the use of a U.S. Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ The Massachusetts Department of Food & Agriculture’s booklet titled “On-Farm Strategies to Protect Water Quality - An Assessment & Planning Tool for Best Management Practices” (December 1996) describes technical and financial assistance programs related to the control of erosion and to the management of nutrients, pests, manure, grazing and irrigation.
- ✓ Work with farmers, nurseries and landscapers to ensure that pesticides, fertilizers and manure are being stored within a structure designed to prevent runoff.

(Continued on page 8)



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

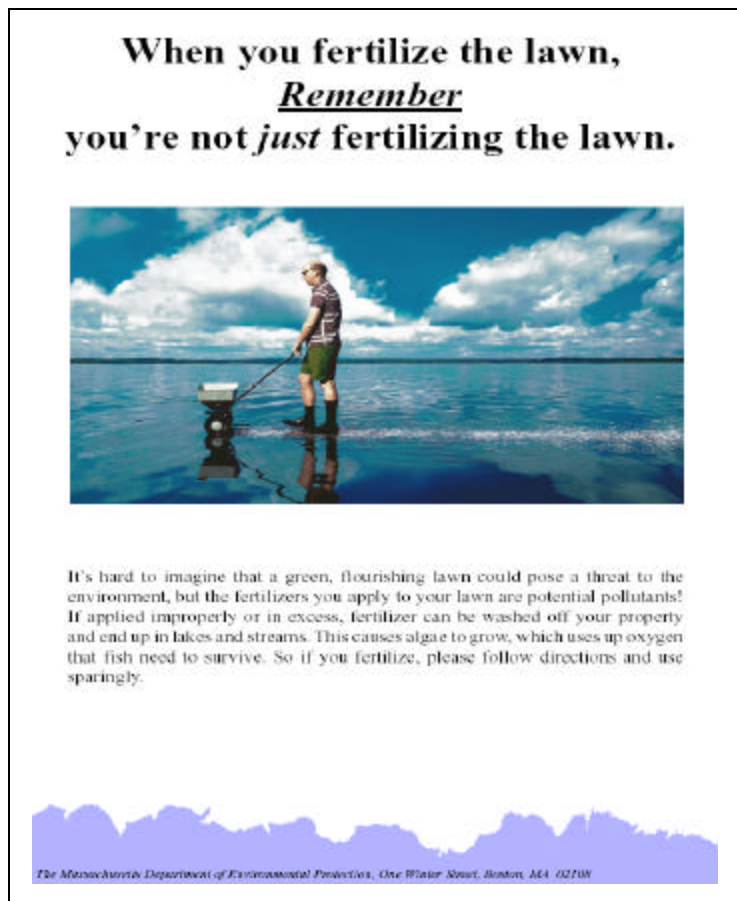
Land Uses	Quantity Zone C	Threat	Zone C Source ID #	Quantity Ipswich River Watershed	Potential Contaminant Sources*
Agricultural					
Dairy Farms	--	M	--	1	Improper handling of manure (microbial contaminants)
Fertilizer Storage or Use	2	M	01S, 03S	Few	Leaks, spills, improper handling, or over-application of fertilizers
Landscaping	--	M	--	1	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Manure Storage or Spreading	1	H	01S	Few	Improper handling of manure (microbial contaminants)
Nurseries	2	M	02S	Few	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Pesticide Storage or Use	2	H	01S, 02S	Few	Leaks, spills, improper handling, or over-application of pesticides
Commercial					
Airports	1	H	01S	--	Spills, leaks, or improper handling of fuels, de-icers, salt, and other hazardous chemicals
Body Shops	--	H	--	9	Improper management of vehicle paints, solvents, and primer products
Gas Stations	2	H	01S	31	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	1	H	01S	39	Spills, leaks, or improper handling of automotive fluids and solvents
Bus and Truck Terminals	--	H	--	6	Spills, leaks, or improper handling of fuels and maintenance chemicals
Cemeteries	1	M	01S	Several	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Dry Cleaners	--	H	--	7	Spills, leaks, or improper handling of solvents and wastes
Golf Courses	1	M	02S	3	Over-application or improper handling of fertilizers or pesticides
Medical Facilities	--	M	--	2	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes

Land Uses	Quantity Zone C	Threat	Zone C Source ID #	Quantity Ipswich River Watershed	Potential Contaminant Sources*
Commercial					
Nursing Homes	--	L	--	2	Microbial contaminants
Photo Processors	--	H	--	3	Spills, leaks, or improper handling or storage of photographic chemicals
Printer and Blueprint Shops	1	M	01S	8	Spills, leaks, or improper handling or storage of printing inks and chemicals
Repair Shops (Engine, Appliances, Etc.)	--	H	--	5	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Sand and Gravel Mining/Washing	--	M	--	3	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial					
Asphalt, Coal Tar, and Concrete Plants	--	M	--	2	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Hazardous Materials Storage	--	H	--	8	Spills, leaks, or improper handling or storage of hazardous materials
Machine/Metalworking Shops	--	H	--	8	Spills, leaks, or improper handling of solvents; metal tailings
RCRA TSDF Facilities	--	H	--	1	Spills, leaks, or improper handling or storage of hazardous wastes
Residential					
Fuel Oil Storage (at residences)	100+	M	01S, 02S, 03S	100+	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	100+	M	01S, 02S, 03S	100+	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	100+	M	01S, 02S, 03S	100+	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous					
Aboveground Storage Tanks	3	M	01S	11	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	100+	L	01S, 02S, 03S	100+	Microbial contaminants
Composting Facilities	1	L	01S	--	Storage and improper handling of organic material, animal waste, and runoff
Fire Training Facilities	1	M	01S	--	Improper use or storage of fuels and other chemicals
Large Quantity Hazardous Waste Generators	--	H	--	14	Spills, leaks, or improper handling or storage of hazardous materials and waste
Landfills and Dumps	1	H	01S	2	Seepage of leachate

Land Uses	Quantity Zone C's	Threat	Zone C Source ID #	Quantity Ipswich River Watershed	Potential Contaminant Sources*
Miscellaneous					
Military Facilities (Past And Present) Type: former NIKE Sites	2	H	01S, 03S	--	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump sites
NPDES Locations	1	L	01S	2	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	4	--	01S	57	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	02S	6	Spills, leaks, or improper handling or storage of deicing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	1	M	02S	4	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	2	M	01S, 02S	56	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains	1/100+	L	01S/02S	100+	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	3	M	01S, 02S, 03S	Several	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	20	H	01S, 02S	191	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	4	L	01S, 02S	125	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/ Recycling Stations	--	M	--	3	Improper management, seepage, and runoff of water contacting waste materials
Wastewater Treatment Plant/Collection Facility/ Lagoons	--	M	--	1	Improper handling or storage of treatment chemicals or equipment maintenance materials; improper management of wastewater
Water Treatment Sludge Lagoons	1	M	01S	1	Improper management of sludge and wastewater
<p>Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>					

4. Residential Land Uses – Approximately 80% of the combined watersheds consist of residential areas, of which a large portion is served by private septic systems, with the remainder being served by municipal sewerage. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.



- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

5. Transportation Corridors - Several major transportation corridors and other paved and unpaved local roads cross through the watersheds. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins. The steep topography of the watershed results in application of de-icing materials to protect public health and safety by keeping the roads passable.

Transportation Corridor Recommendations:

Work with communities within the combined watersheds to:

- ✓ Identify stormwater drains and the drainage system along transportation corridors.
- ✓ Work with the Towns and State to have catch basins inspected, maintained, and cleaned on a regular schedule.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

- ✓ Establish vegetated buffers along roads and parking areas to provide some filtration of contaminants.
- ✓ Encourage regular street sweeping. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.
- ✓ Conduct emergency drills to be ready for spills.
- ✓ Regularly inspect the watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ Work with the Massachusetts Highway Department to erect a suitable barrier on the portion of Route 1A that is adjacent to Wenham Lake.

6. Road and Maintenance Depots - Potential sources of contamination in state and municipal facilities can result from accidental dumping, spills, leaks, vehicle washing operations, or from wastewater treatment. Waste management and product storage pose the greatest threats with a wide variety of potentially harmful contaminants.

Road and Maintenance Depots Recommendations:

Work with communities within the combined watersheds to:

- ✓ Institute **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/neeat/muni/index.html>. Encourage road and maintenance depots to develop best management practices to insure proper salt storage, proper maintenance of facilities and good housekeeping practices.
- ✓ Adequately size salt pile structure to allow for the loading and unloading of salt within the structure. Review the Department of Environmental Protection’s Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.
- ✓ Encourage proper storage of materials at these facilities. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.

7. Presence of Oil or Hazardous Material Contamination Sites – The watersheds for Salem/Beverly and the Ipswich River contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0000230, 3-0000231, 3-0000235, 3-0003597, 3-0000008, 3-0001813, 3-0014088, 3-0011228, 3-0003711, 3-0014696, 3-0017065, 3-0019416, 3-0000168, 3-0001494, 3-0001505, 3-0001941, 3-0004485, 3-0006026, 3-0010212, 3-0014402, 3-0015046, 3-0016824, 3-0018425, 3-0000692, 3-0002363, 3-0002584, 3-0002804, 3-0004007, 3-0004481, 3-0004583, 3-0017390, 3-0001565, 3-0006062, 3-0012406, 3-0014805, 3-0018398, 3-0019352,

3-0013565, 3-0004670, 3-0018082, 3-0000471, 3-0000518, 3-0000625, 3-0000776, 3-0001268, 3-0001728, 3-0001916, 3-0001973, 3-0002889, 3-0003548, 3-0003766, 3-0004022, 3-0004170, 3-0012586, 3-0013922, 3-0014811, 3-0014814, 3-0015247, 3-0017097, 3-0019380 and 3-0019651. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

8. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the City of Beverly has a Watershed Protection Overlay District Zoning Ordinance that was adopted in 1990; however, the watershed towns do not have water supply protection controls that meet DEP’s Surface Water Protection regulations 310 CMR 22.20 (b) and (c). A Surface Water Supply Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply reservoirs.

Protection Planning Recommendations:

Work with communities within the combined watersheds to:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Encourage watershed towns to adopt controls that meet 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone A?	YES (Putnamville Reservoir)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials. To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements.
	NO (Wenham Lake, Longham Reservoir)	
Is the Zone A/ Emergency Planning Zone posted with "Public Drinking Water Supply" Signs?	YES	The Emergency Planning Zone for the Ipswich River Watershed is not posted Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply -related activities the only activities within the Zone A?	YES (Wenham Lake, Longham Reservoir)	Continue monitoring for non-water supply activities in Zone As.
	NO (Putnamville Reservoir)	Monitor prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20B and 22.20C?	NO	Work with the Planning Board and the Beverly City Council to compare land use controls to see that they meet current requirements of 310 CMR 22.20 (B) and 310 CMR 22.20 (C). Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Work with the Towns of Danvers, Topsfield and Wenham to include Salem/Beverly watersheds in their protection controls.
Planning		
Does the PWS have a local surface water protection plan?	NO	Develop a surface water supply protection plan. Follow "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	SOME	Currently, outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the Zone C.

- ✓ Continue to work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the towns, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Protection areas that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Emergency Planning Recommendations for Class B River Intakes

Prevention

Public water suppliers with a river source may take preventive measures to protect the source from unexpected releases. Here are some suggestions.

1. Title III (Emergency Planning and Community Right-to-Know) of the Superfund Amendments & Reauthorization Act (SARA) of 1986 required that each community **develop a comprehensive emergency response plan**. Suppliers should review the existing plan to ensure that water supply issues are satisfactorily addressed in the plan, that current response personnel and their correct telephone numbers are listed, and that the entire plan is regularly reviewed and updated by community officials.

The community plan, or a separate water supplier plan, should include copies of policies in the event of spills or releases; regulatory notification requirements such as what size spills are required to be reported, who to call, telephone numbers, and what information is required to be reported; map of intakes, tributaries, watershed boundaries, adjacent public wells, and locations of sites where spills or accidental releases could occur.

2. **Identify, map and distribute information** to local emergency responders regarding the locations of intakes on the river, tributaries, watershed boundaries, public wells adjacent to river; chemical use at municipal, state, and industrial facilities in the watersheds (contact Fire Dept., DEP); locations of stormwater drains and the locations of known dams in the event that they can be manipulated by authorized individuals for contaminant control.

The Fire Dept., Board of Health, Planning Board, Local Emergency Planning Committee (LEPC), DEP and others may have existing information to help with your work. SARA requires companies to work with the community's LEPC if they handle extremely hazardous chemicals in quantities above established thresholds.

3. **Develop a communication list** of contacts at upstream and downstream facilities, dams, as well as other public water suppliers on, or adjacent to, rivers. Notify owners and operators of these facilities about the location of your intake and request, in writing, that you be notified immediately in the event of a chemical spill or unexpected discharge. Take this opportunity to educate others about water supply protection.
4. **Provide comments** to municipal boards in other cities/towns in the watershed about proposed development, land use controls, Best Management Practices (BMPs) for stormwater flow into tributaries, and other issues to avoid future problems.
5. **Post signs** along major roads in watershed which direct the public to call "911" or other appropriate local number in case of spills. Be aware of accident-prone areas and transport routes of chemicals if possible.
6. **Educate** the public, local officials, Civil Defense, local emergency response team, and others about water supply protection issues. Educate businesses about toxic use reduction.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

7. **Conduct household hazardous waste collection days** and establish permanent collection sites, away from sensitive watershed areas, for used batteries, paints, motor oil, etc.
8. **Conduct drills**, in coordination with local/regional response teams, to test policies and procedures and to practice responding to various situations. Including businesses, local officials and staff, Fire Departments, Boards of Health, Civil Defense, school administration, and others in planning and implementing the drills will allow for several town or region-wide concerns to be addressed and tested at the same time, including: issuing health advisories, conducting neighborhood and/or school evacuations, and evaluating the town's communication system (both making responders aware of the emergency and issuing advisories to the public when necessary via television, radio, and other news media), equipment and emergency plan in general.
9. Critique the drills and **modify components** of the emergency response system as needed.

Responding to Emergencies

Drinking water supply professionals responding to local emergencies need to be adequately prepared and trained, and know their roles and responsibilities. Here are some suggestions.

1. **Know regulatory reporting requirements** of state and federal agencies. Know who to call, telephone numbers and what information to report.
2. **Know your role & responsibilities.** Have access to, and be familiar with, the emergency communication list, policies and procedures for emergency response; know when, and how, to safely handle spills or other events until first responders arrive on scene; know what steps to take to avoid drawing contaminants into the water supply system; be familiar enough with local watershed characteristics to provide incident commander with information and advice.

**When you wash your car in the driveway,
Remember
you're not *just* washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108

3. **Provide training and materials to responding staff.** Water supply staff, including new employees, should be adequately trained, have access to appropriate materials (storm drain covers, absorbent pads, booms, etc.), up-to-date policies, procedures, and communication lists to perform tasks for which they are responsible.

Follow-up

Steps can be taken to ensure better preparedness in the event of future emergency situations. Here are some suggestions.

1. **Provide follow-up reports** to the public on the resolution of the situation.
2. **Share the information** learned from drills and real situations with others in order to better protect all public drinking water sources.

Section 4: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Current Land Uses and Source Protection:

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- The review of development plans in the City of Beverly and the Town of Wenham
- Conducting monthly stream monitoring throughout the watersheds that includes routine chemistry and microbiology
- Managing geese on Wenham Lake by keeping reservoir levels high during summer months

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Develop and implement a Surface Water Supply Protection Plan.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in watersheds and to cooperate on responding to spills or accidents.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or hazardous materials contamination site.
- ✓ Work cooperatively with Boards of Health to develop an inventory of septic systems in Hamilton, Topsfield, and Wenham.
- ✓ Work with businesses and others who have landscaped areas in the watersheds to encourage BMPs for the use of fertilizer and pesticide.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Continue to inspect the Zone A areas regularly, and when feasible, remove prohibited non-water supply activities.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects.

Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination

and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watersheds. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 5: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Billerica Water Department

What is SWAP?

The Source Water Assessment and Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Billerica Water Department
<i>PWS Address</i>	250 Boston Road
<i>City/Town</i>	Billerica, Massachusetts 01862
<i>PWS ID Number</i>	3031000
<i>Local Contact</i>	John McGovern
<i>Phone Number</i>	(978) 671-0957

Introduction

We are all concerned about the quality of the water we drink. Public wells, reservoirs and rivers may be threatened by potential contaminant sources, including storm runoff, spills, and improper disposal of hazardous materials. Citizens, businesses and local officials can work together to better protect these drinking water sources.

Purpose of this report:

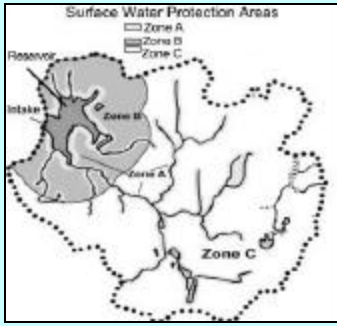
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

This report includes the following sections:

1. Description of the Water System
2. Land Uses in the Watershed
3. Emergency Planning Recommendations
4. Additional Resources Available for Source Water Protection
5. Appendices

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



A Class B water body source such as the Concord River does not have Zone A, B and C protection areas, as do Class A water body sources. For the purposes of the SWAP assessments, a 400 foot setback area along the river and all feeder streams has been delineated for Class B water body sources that is referred to as an "Emergency Planning Zone". Land uses and activities within this zone are of particular concern for source protection and emergency planning because of their proximity to the water supply.

River drinking water sources are particularly susceptible to spills and accidental releases from public and private discharges; accidents related to vehicles, railroads, airports, boats; utility easements; fixed site releases at industrial and public facilities; inappropriate use of pesticides and fertilizers; improper disposal of hazardous household waste; and illegal dumping of a variety of substances.

This assessment has been conducted on the watershed area upstream of the Concord River intake. In addition, DEP has delineated a 400-foot emergency planning zone (shown on the GIS map that accompanies this report) adjacent to the river and its tributaries for the purpose of this assessment.

This report contains a list of regulated facilities that are located within the watershed. Page 9 of this report contains recommendations for emergency planning.

Class B River Intakes

Class B water sources do not have Zone A, B and C protection areas as the Class A sources do. For the purposes of this report, an "Emergency Planning Zone" has been delineated. The **Emergency Planning Zone** is the land area within 400 feet of both sides of the river including all tributary streams and surface water bodies.

Section 1: Description of the Water System

<i>Source Name</i>	<i>Source ID</i>	<i>Susceptibility</i>
Concord River	3031000-01S	High

The Billerica Water Department (Billerica) withdraws water from the Concord River to supply drinking water to the town of Billerica. The Massachusetts Surface Water Quality Standards classify the Concord River as a Class B waterway. That means that the water withdrawn for drinking water purposes must be treated.

For current information on monitoring results and treatment or for a copy of the most recent Consumer Confidence Report, please contact the public water system contact person listed above in Table 1. Drinking water monitoring data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Class B Drinking Water Sources

There are twelve Class B drinking water sources on rivers in Massachusetts, eleven in the urbanized northeast and one in the western part of the State. One of these sources is located on the Concord River. The large watersheds and historically urbanized land uses associated with major rivers make source protection a challenge at the Class B sources.

Section 2: Land Uses in the Protection Areas

The protection area for Billerica is a mixture primarily of forest, residential, commercial, and industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues Include:

1. Activities in Emergency Planning Zone
2. Agricultural Activities
3. Hazardous Materials Manufacture, Storage and Use
4. Stormwater Flows
5. Railroad Tracks
6. Transmission Lines
7. Golf Courses

Key Land Uses and Protection Issues Include:

8. Road and Maintenance Depots
9. Residential Land Uses
10. Federal Superfund Site and Oil or Hazardous Material Contamination Sites

1. Activities in Emergency Planning Zone - The Emergency Planning Zone is a 400 foot setback on either side of river and all tributaries to a Class B river intake. Land use activities within an Emergency Planning Zone may have an impact on surface water sources. Wild animals and domestic pet wastes can carry waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. while septic systems and road runoff can carry these as well as other contaminants.

Emergency Planning Zone Recommendations:

Work with communities within the watershed to:

- ✓ Continue your efforts to protect these areas and to monitor and review activities within the Emergency Planning Zone for the Concord River.

2. Agricultural Activities – Agricultural land uses, cropland and pastures, comprise about 2% of the entire watershed. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, underground and aboveground storage tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills. Agricultural activities can also be a potential source of microbial contamination from improper manure management.

Agricultural Recommendations:

Work with communities within the watershed to:

- ✓ Work with farmers to make them aware of the water supply and to encourage the use of a U.S. Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ The Massachusetts Department of Food & Agriculture’s booklet titled “On-Farm Strategies to Protect Water Quality - An Assessment & Planning Tool for Best Management Practices” (December 1996) describes technical and financial assistance programs related to the control of erosion and to the management of nutrients, pests, manure, grazing and irrigation.
- ✓ Work with farmers to ensure that pesticides, fertilizers and manure are being stored within a structure designed to prevent runoff.

3. Hazardous Materials Manufacture, Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in USTs and ASTs. Although many facilities within the watershed use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

Work with communities within the watershed to:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

What are BMPs?

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

- ✓ Monitor water quality in the Merrimack River.
- ✓ Continue to plan and prepare for spills by communicating with facilities and conducting drills.

4. Transportation Corridors - Route 3, Route 495, Route 290, Route 90 and other paved and unpaved local roads and highways cross through the watershed. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins. The steep topography of the watershed results in application of de-icing materials to protect public health and safety by keeping the roads passable.

Transportation Corridor Recommendations:

Work with communities within the watershed to:

- ✓ Establish vegetated buffers along roads and parking areas to provide some filtration of contaminants.

- ✓ Encourage regular street sweeping. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.
- ✓ Conduct emergency drills to be ready for spills.
- ✓ Regularly inspect the watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ Work with the City and State to have catch basins inspected, maintained, and cleaned on a regular schedule.

5. Stormwater Flows - Stormwater from roads and commercial development flows directly into the Concord River and its tributaries. Stormwater may contain debris, chemicals, bacteria, and nutrients that can impact water quality in the river. Spills can enter the river through stormwater flows.

Stormwater Flows Recommendations:

Work with communities within the watershed to:

- ✓ Encourage parking lot sweeping in commercial areas.
- ✓ Conduct routine testing for bacteria in river after storms.
- ✓ Continue to plan and prepare for spills.
- ✓ If storm drainage maps are available, review the maps with emergency response teams.

6. Railroad Rights-of-Way - Railroad tracks are located throughout the watershed of the Concord River. Railroad Rights-of-Way are potential sources of contamination because of the possibility of spills of transported materials, chemical releases during track maintenance, or the over-application or improper handling of herbicides during rights-of-way maintenance.

The Rights-of-Way Management Regulations (333 CMR 11.00) were designed to minimize any potential harmful effects of herbicides used for vegetation control along Rights-of-Way in Massachusetts. The regulations promote the use of an integrated pest management (IPM) approach to vegetation control and require application setback distances to protect drinking water sources and other environmentally sensitive areas. Utilities must submit a Vegetation Management Plan (VMP) and a Yearly Operating Plan (YOP) to the Mass. Department of Food and Agriculture for approval and to the municipalities within which herbicide application is proposed.



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Uses in the Watershed

For more information, refer to Appendix B: Regulated Facilities.

Land Uses	Quantity	Threat	Potential Sources of Contamination*
Agricultural			
Fertilizer Storage or Use	2	M	Leaks, spills, improper handling, or over-application of fertilizers
Landscaping	4	M	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Nurseries	2	M	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Pesticide Storage or Use	2	H	Leaks, spills, improper handling, or over-application of pesticides
Commercial			
Airports	1	H	Spills, leaks, or improper handling of fuels, de-icers, salt, and other hazardous chemicals
Body Shops	28	H	Improper management of vehicle paints, solvents, and primer products
Gas Stations	22	H	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	100+	H	Spills, leaks, or improper handling of automotive fluids, and solvents
Bus and Truck Terminals	10	H	Spills, leaks, or improper handling of fuels and maintenance chemicals
Car/Truck/Bus Washes	2	L	Improper management of vehicle wash water; soaps; oils; greases; metals; salts
Cemeteries	Several	M	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Dry Cleaners	19	H	Spills, leaks, or improper handling of solvents and wastes
Funeral Homes	1	L	Spills, leaks, or improper handling of hazardous chemicals
Furniture Stripping and Refinishing	3	H	Spills, leaks, or improper handling of hazardous chemicals
Golf Courses	6	M	Over-application or improper handling of fertilizers or pesticides
Laundromats	Few	L	Improper management of wash water
Medical Facilities	24	M	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes

Land Uses	Quantity	Threat	Potential Sources of Contamination*
Paint Shops	5	H	Spills, leaks, or improper handling or storage of paints, solvents, other chemicals
Photo Processors	8	H	Spills, leaks, or improper handling or storage of photographic chemicals
Printer and Blueprint Shops	16	M	Spills, leaks, or improper handling or storage of printing inks and chemicals
Railroad Tracks and Yards	Several	H	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Repair Shops (Engine, Appliances, Etc.)	1	H	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Research Laboratories	5	M	Spills, leaks, or improper handling or storage of laboratory chemicals and wastes
Sand and Gravel Mining/Washing	3	M	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial			
Asphalt, Coal Tar, and Concrete Plants	2	M	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Chemical Storage or Manufacture	1	H	Spills, leaks, or improper handling or storage of chemicals and process wastes
Electronics/Electrical Manufacturers	7	H	Spills, leaks, or improper handling or storage of chemicals and process wastes
Food Processors	2	L	Spills, leaks, or improper handling or storage of cleaners and other chemicals; microbial contaminants
Fuel Oil Distributors	3	H	Spills, leaks, or improper handling or storage of fuel oil
Hazardous Materials Storage	27	H	Spills, leaks from improper handling or storage of hazardous waste
Industrial Parks	Few	H	Leaks, spills of chemicals from improper handling or storage
Machine/Metalworking Shops	7	H	Spills, leaks, or improper handling of solvents; metal tailings
Pharmaceutical Manufacturers	1	H	Spills, leaks, or improper handling and or storage of chemicals
RCRA TSD Facilities	1	H	Spills, leaks, or improper handling or storage of hazardous waste
Residential			
Fuel Oil Storage (at residences)	100+	M	Spills, leaks, or improper handling of fuel oil

Land Uses	Quantity	Threat	Potential Sources of Contamination*
Residential (cont.)			
Lawn Care / Gardening	100+	M	Over-application or improper storage and disposal of pesticides
Septic Systems / Cesspools	100+	M	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous			
Aboveground Storage Tanks	50	M	Spills, leaks, or improper handling of materials stored in tanks
Clandestine Dumping	Few	H	Debris containing hazardous materials or wastes
Composting Facilities	1	L	Storage and improper handling of organic material, animal waste, and runoff
Fishing/Boating	Few	L	Fuel and other chemical spills, microbial contaminants
Landfills and Dumps	4	H	Seepage of leachate
Large Quantity Hazardous Waste Generators	18	H	Spills, leaks, or improper handling or storage of hazardous materials and waste
Military Facilities (Past And Present) Type: <u>Army, National Guard</u>	2	H	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump sites
NPDES Locations	8	L	Improper disposal of hazardous material and waste
Oil or Hazardous Material Sites	173	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Prisons	2	M	Spills, leaks, or improper handling or storage of solvents, microbial waste, and other chemicals
Road and Maintenance Depots	14	M	Spills, leaks, or improper handling or storage of de-icing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	Numerous	M	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	86	M	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains	100+	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Superfund Sites	1	H	Spills, leaks, or improper handling or storage of oil or hazardous materials and waste
Transmission Line Rights-of-Way	Few	L	Construction and corridor maintenance, over-application or improper handling of herbicides

Land Uses	Quantity	Threat	Potential Sources of Contamination
Transportation Corridors	6	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	?	H	Spills, leaks, or improper handling of stored materials
Utility Substation Transformers	1	L	Spills, leaks, or improper handling of chemicals and other materials including PCBs
Very Small Quantity Hazardous Waste Generators	100+	L	Spills, leaks, or improper handling or storage of hazardous materials and waste
Wastewater Treatment Plant/Collection Facility/Lagoons	7	M	Improper handling or storage of treatment chemicals or equipment maintenance materials; improper management of wastewater
Waste Transfer/Recycling Stations	3	M	Improper management, seepage, and runoff of water contacting waste materials
<p>Notes:</p> <ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities. 3. For information about Oil or Hazardous Materials Sites, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - Where there are two rankings, the first is for ground water, the second for surface water. The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>			

(Continued from page 4)

Railroad Rights-of-Way Recommendations:

Work with communities within the watershed to:

- ✓ Review the utility's YOP to ensure that BMPs for herbicide applications are in place.
- ✓ Plan for spills and conduct emergency response drills to test procedures.

7. Transmission (Utility) Lines - Transmission lines run throughout the watershed. These are potential sources of contamination because of the possibility of over-application or improper handling of herbicides during rights-of-way maintenance.

Transmission (Utility) Lines Recommendation:

Work with communities within the watershed to:

- ✓ Monitor the YOP for pesticide applications.

8. Golf Courses - There are several golf courses within the assessment area. Potential contaminants include the over-application or improper handling of pesticides and fertilizers. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Courses Recommendations:

Work with communities within the watershed to:

- ✓ Encourage the golf course grounds manager to incorporate an Integrated Pest Management (IPM) approach into their grounds maintenance program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote Best Management Practices (BMPs) for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Contact owners/operators about water supply awareness and protection.

9. Road and Maintenance Depots - Potential sources of contamination in state and municipal facilities can result from accidental dumping, spills, leaks, vehicle washing operations, or from wastewater treatment. Waste management and product storage pose the greatest threats with a wide variety of potentially harmful contaminants.

Road and Maintenance Depots Recommendations:

Work with communities within the watershed to:

- ✓ **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/neeat/muni/index.html>. Encourage road and maintenance depots to develop best management practices to ensure proper salt storage, proper maintenance of facilities and good housekeeping practices.
- ✓ Salt pile structures should be adequately sized to allow for the loading and unloading of salt within the structure. Review the Department of Environmental Protection's Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.
- ✓ Encourage proper storage of materials at these facilities. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.

10. Residential Land Uses - Over 30% of the assessment area consists of residential land uses. If managed improperly, household hazardous waste, septic systems, lawn care and pet waste can all contribute to ground and surface water contamination. Household hazardous wastes include automotive wastes,

**When you fertilize the lawn,
Remember
you're not just fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108

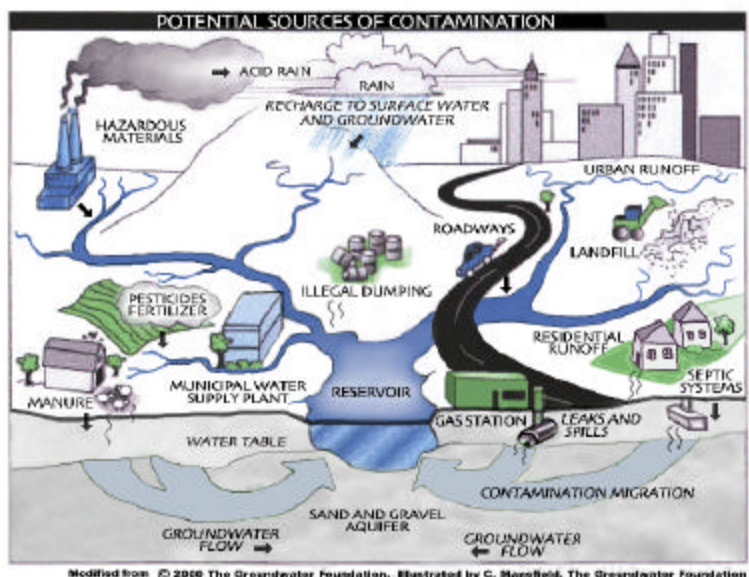
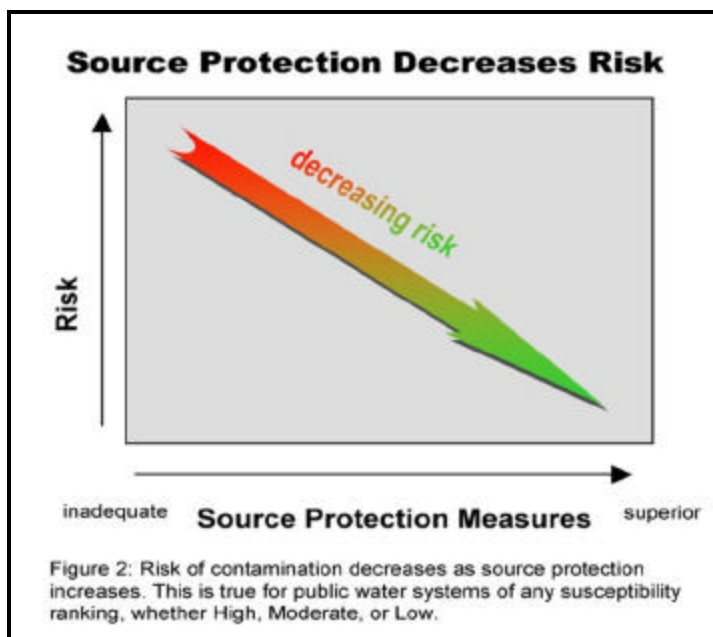


Figure 1: Sample watershed with examples of potential sources of

paints, solvents and other substances that should be disposed of properly at a municipal collection site. If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Improperly applied fertilizers and pesticides can wash off lawns and into surface waters. Pet waste may contain bacteria, parasites or viruses that are health risks.

- **Septic Systems** - Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.



- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Residential Land Use Recommendations:

Work with communities within the watershed to:

- ✓ Work with city officials to control residential growth on undeveloped land.
- ✓ See www.state.ma.us/envir/ to obtain information on the build-out analyses for communities into which the watershed extends.
- ✓ Educate residents on how to protect water supplies. Distribute the fact sheet *Residents Protect Drinking Water* available in Appendix A and at www.mass.gov/dep/brp/dws/protect.htm.
- ✓ Post water supply awareness signs on streets throughout the watershed.
- ✓ Work with city boards and upstream communities to review and provide recommendations on proposed watershed development.

11. Presence of Federal Superfund Site and Oil or Hazardous Material Contamination Sites – The watershed for the Concord River contains a United States Environmental Protection Agency (USEPA) Superfund Site that is associated with DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0000437 and 2-0000722. The watershed within the Town of Billerica also contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 3-0004080, 3-0012013, 3-0017475, and 3-0017905. Refer to the attached maps and Appendix C for more information on these sites, and for information on DEP Tier Classified Oil and/or Hazardous Material Release Sites within the watershed for the Concord River.

Federal Superfund Site and Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

Information about DEP Tier Classified Oil or Hazardous Material Release Sites can be obtained at DEP's Bureau of Waste Site Cleanup's web site, www.state.ma.us/dep/bwsc. Sites are identified on the attached GIS map and site specific information is available in Appendix C.

Other land uses and activities within the emergency planning zone and watershed that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Emergency Planning Recommendations for Class B River Intakes

Prevention

Public water suppliers with a river source may take preventive measures to protect the source from unexpected releases. Here are some suggestions.

1. Title III (Emergency Planning and Community Right-to-Know) of the Superfund Amendments & Reauthorization Act (SARA) of 1986 required that each community **develop a comprehensive emergency response plan**. Suppliers should review the existing plan to ensure that water supply issues are satisfactorily addressed in the plan, that current response personnel and their correct telephone numbers are listed, and that the entire plan is regularly reviewed and updated by community officials.
The community plan, or a separate water supplier plan, should include copies of policies in the event of spills or releases; regulatory notification requirements such as what size spills are required to be reported, who to call, telephone numbers, and what information is required to be reported; map of intakes, tributaries, watershed boundaries, adjacent public wells, and locations of sites where spills or accidental releases could occur.
2. **Identify, map and distribute information** to local emergency responders regarding the locations of intakes on the river, tributaries, watershed boundaries, public wells adjacent to river; chemical use at municipal, state, and industrial facilities in watershed (contact Fire Dept., DEP); locations of stormwater drains and the locations of known dams in the event that they can be manipulated by authorized individuals for contaminant control.
The Fire Dept., Board of Health, Planning Board, Local Emergency Planning Committee (LEPC), DEP and others may have existing information to help with your work. SARA requires companies to work with the community's LEPC if they handle extremely hazardous chemicals in quantities above established thresholds.
3. **Develop a communication list** of contacts at upstream and downstream facilities, dams, as well as other public water suppliers on, or adjacent to, rivers. Notify owners and operators of these facilities about the location of your intake and request, in writing, that you be notified immediately in the event of a chemical spill or unexpected discharge. Take this opportunity to educate others about water supply protection.
4. **Provide comments** to municipal boards in other cities/towns in the watershed about proposed development, land use controls, Best Management Practices (BMPs) for stormwater flow into tributaries, and other issues to avoid future problems.
5. **Post signs** along major roads in watershed which direct the public to call "911" or other appropriate local number in case of spills. Be aware of accident-prone areas and transport routes of chemicals if possible.
6. **Educate** the public, local officials, Civil Defense, local emergency response team, and others about water supply protection issues. Educate businesses about toxic use reduction.
7. **Conduct household hazardous waste collection days** and establish permanent collection sites, away from sensitive watershed areas, for used batteries, paints, motor oil, etc.
8. **Conduct drills**, in coordination with local/regional response teams, to test policies and procedures and to practice responding to various situations. Including businesses, local officials and staff, Fire Departments, Boards of Health, Civil Defense, school administration, and others in planning and implementing the drills will allow for several town or region-wide concerns to be addressed and tested at the same time, including: issuing health advisories, conducting neighborhood and/or school evacuations, and evaluating the town's communication system (both making responders aware of the emergency and issuing advisories to the public when necessary via television, radio, and other news media), equipment and emergency plan in general.
9. Critique the drills and **modify components** of the emergency response system as needed.

Responding to Emergencies

Drinking water supply professionals responding to local emergencies need to be adequately prepared and trained, and know their roles and responsibilities. Here are some suggestions.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

1. **Know regulatory reporting requirements** of state and federal agencies. Know who to call, telephone numbers and what information to report.
2. **Know your role & responsibilities**. Have access to, and be familiar with, the emergency communication list, policies and procedures for emergency response; know when, and how, to safely handle spills or other events until first responders arrive on scene; know what steps to take to avoid drawing contaminants into the water supply system; be familiar enough with local watershed characteristics to provide incident commander with information and advice.
3. **Provide training and materials to responding staff**. Water supply staff, including new employees, should be adequately trained, have access to appropriate materials (storm drain covers, absorbent pads, booms, etc.), up-to-date policies, procedures, and communication lists to perform tasks for which they are responsible.

Follow-up

Steps can be taken to ensure better preparedness in the event of future emergency situations. Here are some suggestions.

1. **Provide follow-up reports** to the public on the resolution of the situation.
2. **Share the information** learned from drills and real situations with others in order to better protect all public drinking water sources.

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in the Key Issues above and Appendix A.

Section 4: Additional Resources Available for Source Water Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Source Protection Grant Program provides funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response (RFR) for the grant program.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watershed. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 5: Appendices

- A. Protection Recommendations
- B. List of Regulated Facilities (in Massachusetts)
- C. Table of Tier Classified Oil and/or Hazardous Material Sites
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN BILLERICA'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
328870	ACTON FAMILY PODIATRY	179 GREAT RD	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
215810	ACTON FORD INC	76 POWDERMILL RD	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
310005	ACTON HARDWARE	210 MAIN ST	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
133080	ACTON RESEARCH CORP	530 MAIN ST	ACTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
131288	ACTON TOWN OF HIGHWAY DEPT	14 FOREST RD	ACTON	FULDSP	FUEL DISPENSER
39955	ACTON TRANSFER STATION	14 FOREST RD	ACTON	TRSTN	TRANSFER STATION FOR HAZARDOUS MATERIAL
131640	ADESA AUCTIONS	77 HOSMER ST	ACTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
320210	ADVANCED AUTO SCIENCES INC	140 GREAT RD	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
287624	AMES DEPT STORE	385 MASSACHUSETTS AVE	ACTON	PLANT	AIR QUALITY PERMIT
287624	AMES DEPT STORE	385 MASSACHUSETTS AVE	ACTON	DISCH	BELOW INDUSTRIAL WASTE WATER REG LEVELS
132423	ASSABET SAND & GRAVEL CO INC	16 KNOX TRL	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
357695	B2E RESOURCE	125 NAGOG PARK	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130055	BOC GASES	37 LAWSBROOK RD	ACTON	HANDLR	LARGE QUANTITY GENERATOR OF WASTE OIL OR PCBS
805	BRIARBROOK FARM	21 DAVIS RD	ACTON	GROUND	GROUNDWATER DISCHARGE
306605	BURKART PHELAN INC	20 MAIN ST	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
340397	CAPIZZI & CO INC	820 MAIN ST	ACTON	FULDSP	FUEL DISPENSER
106129	CAPIZZI & CO INC	820-830 MAIN ST	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
318776	COLONIAL AUTOMOTIVE INC	245 ARLINGTON ST	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
133228	CONCEPTS UNLIMITED INC	5 GRANITE RD	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37027	CREATIVE CAMERA	271 GREAT RD	ACTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
305405	CVS #0706	393 MASSACHUSETTS AVE	ACTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
305513	DP LENOX LANDSCAPING	1 KEEFE RD	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
208681	GORDON CHEVROLET GEO INC	171 GREAT RD	ACTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
130049	GRACE W R & CO	51 INDEPENDENCE RD	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
5942	GREAT ROAD APARTMENTS	380 C GREAT RD	ACTON	GROUND	GROUNDWATER DISCHARGE
130050	HAARTZ CORP	87 HAYWARD RD	ACTON	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
318213	HARVARD ANIMAL HOSP DBA ACTON ANIMAL HOS	363 MAIN ST	ACTON	PLANT	AIR QUALITY PERMIT
37918	KMART STORE	252 MAIN ST	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133226	LAMBDA PHYSIK INC	289 GREAT RD	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
332899	LAWN BARBER INC	816 MAIN ST	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
34061	LAZARO PAVING CORP	53 RIVER ST	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
305631	LINCOLN TREE & LANDSCAPING	784 MAIN ST	ACTON	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
367203	MOBIL 10473	553 MASSACHUSETTS AVE	ACTON	FULDSP	FUEL DISPENSER
337311	NAGOG PARK INVESTORS LLC	100 NAGOG PARK	ACTON	PLANT	AIR QUALITY PERMIT
554	NORTH ACTON TREATMENT CORP	1 NAGOG PARK	ACTON	GROUND	GROUNDWATER DISCHARGE
29863	NORTHSTAR TECHNOLOGIES	30 SUDBURY RD	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
320600	NOVOTECH INC	916 MAIN ST	ACTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
328531	PETRO SPEC INC	530 MAIN ST	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
289747	PITT CONSTRUCTION CORP	816 MAIN ST	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
291942	PYRRO EQUIPMENT	42 KNOX TRL	ACTON	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
290380	QUINNS AUTO BODY	76 POWDERMILL RD	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
316282	ROBINSON MOBILE MARINE	1 WILLOW ST	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
284455	ROCHE BROS	381 MASSACHUSETTS AVE	ACTON	PLANT	AIR QUALITY PERMIT
293644	SCHOOL ST GARAGE	27 SCHOOL ST	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325235	SHELL 137696	341 GREAT RD	ACTON	FULDSP	FUEL DISPENSER
301957	SWANSON PONTIAC BUICK TRK INC	12 SUDBURY RD	ACTON	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
300013	THE DOCTOR	2 EASTERN RD	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
136714	TRACEYS SUNOCO	45 POWDER MILL RD	ACTON	HANDLR	BELOW HAZARDOUS WASTE REG LEVELS
215822	UNIFORM PRINTING & SUPPLY INC	125 NAGOG PARK	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
209971	VERIZON NEW ENGLAND INC	5 CRAIG RD	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37113	VILLAGE SAAB	30 MAIN ST	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
299437	WAITECO MACHINE	4 HIGH ST	ACTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130140	AGGREGATE INDUSTRIES NORTHEAST REGION	71 SPRING ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
	ASHLAND DEPARTMENT OF PUBLIC WORKS		ASHLAND	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
35886	ASHLAND DPW	20 PONDEROSA RD	ASHLAND	FULDSP	FUEL DISPENSER
37966	ASHLAND FIRE DEPT	151 MAIN ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
39041	ASHLAND LANDFILL	HOWE ST	ASHLAND	SLF	CLOSED LANDFILL
131307	ASHLAND SAND & STONE	120 CHESTNUT ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37019	B & M FUEL SUPPLY INC	15 ALDEN ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
376322	BOSTON POWER CRUSHING CORP	71 SPRING ST	ASHLAND	PLANT	AIR QUALITY PERMIT
368359	BROOKS PHARMACY	339 POND ST	ASHLAND	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
117207	BRUEN ENVELOPE & PAPER	111 CHERRY ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
117207	BRUEN INC	111 CHERRY ST	ASHLAND	DISCH	MWRA SEWER CONNECTION
280410	BUSY BEE TRANSPORTATION INC	43 NICKERSON RD	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
337581	CLEANER BY NATURE	270 ELIOT ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
34358	CONTRACT APPLICATIONS INC	270 ELIOT ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325895	CVS 1226	47 POND ST	ASHLAND	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
367448	EXXONMOBIL OIL CORP	272 POND ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37361	FOREIGN MOTORS WEST INC	240 ELIOT ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
326164	HOLLIS AUTO BODY INC	230 ELIOT ST	ASHLAND	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
126406	INDIAN SPRING SERVICE INC	123 UNION ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37537	INTL SOCIETY OF FIRE SERVICE INSTR	30 MAIN ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130142	KIDDE FENWAL INC	400 MAIN ST	ASHLAND	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
319106	LENTROS ENGINEERING	198 PLEASANT ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
128212	M D BOTH INDUSTRIES	40 NICKERSON RD	ASHLAND	TURRPT	LARGE QUANTITY TOXICS USER
31649	MINUCCI AUTO BODY & WELDING	252 POND ST 126	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
367448	MOBIL 10308	272 POND ST	ASHLAND	FULDSP	FUEL DISPENSER
130141	NYACOL PRODUCTS INC	MEGUNCO RD	ASHLAND	DISCH	MWRA SEWER CONNECTION

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
35002	OAK ST AUTO BODY	159 OAK ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133322	PRODUCTIONEERING	93 CORDAVILLE RD	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
334494	PROFESSIONAL AUTOBODY	29 ALDEN ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325242	SHELL 137699	123-127 UNION ST	ASHLAND	FULDSP	FUEL DISPENSER
37839	STAT PRODUCTS INC	200 BUTTERFIELD DR STE D	ASHLAND	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
216020	SUBURBAN WELDERS SUPPLY	72 NICKERSON RD	ASHLAND	DISCH	MWRA SEWER CONNECTION
216024	SYON CORPORATION	280 ELLIOT ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
38207	TOMS AUTO BODY	65 UNION ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
205507	TRISTATE TRUCK REPAIR	22C NICKERSON RD	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
135818	USA GAS INC	119 POND ST	ASHLAND	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
135818	USA GAS INC	119 POND ST	ASHLAND	DISCH	INDUSTRIAL WASTE WATER TO SEWER
135818	USA GAS INC	119 POND ST	ASHLAND	TURRPT	LARGE QUANTITY TOXICS USER
135818	USA GAS INC	119 POND ST	ASHLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
135818	USA GAS INC	119 POND ST	ASHLAND	FULDSP	FUEL DISPENSER
117599	PERMA INC	605 SPRINGS RD	BEDFORD	TURRPT	LARGE QUANTITY TOXICS USER
343546	A&E AUTOMOTIVE	5 INNIS DRIVE	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
408	AERODYNE RESEARCH INC	45 MANNING RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
343099	ARROW REPAIR	1 INNIS DRIVE BAY G	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
37795	AUTOZONE #5059 DBA	305 BOSTON ROAD	BILLERICA	HANDLR	LARGE QUANTITY GENERATOR OF WASTE OIL OR PCBS
241532	B T U ENGINEERING CORP	23 ESQUIRE RD	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
336750	BD BIOSCIENCE	296 CONCORD ROAD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
12263	BILLERICA DEPARTMENT OF PUBLIC WORKS	250 BOSTON RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
370699	BRISTOL MYERS SQUIBB MEDICAL IMAGING INC	331 TREBLE COVE RD	BILLERICA	PLANT	RES APPLICATION APPROVED
241528	BRUCE TECHNOLOGIES INTERNATIONAL	25 ESQUIRE RD	BILLERICA	DISCH	INDUSTRIAL WASTE WATER PLAN
131349	BULL HN INFORMATION SYSTEMS INC	300 CONCORD RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
33395	BURSEYS AUTO BODY	4 INNIS DR	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131768	CABOT CORPORATION	157 CONCORD RD	BILLERICA	PLANT	AIR QUALITY PERMIT
343097	CARROLL AUTO BODY	1 INNIS DRIVE	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
376410	CONOCOPHILLIPS EXXON 2634672	643 BOSTON RD	BILLERICA	FULDSP	FUEL DISPENSER
366842	CONTINUUM PHOTONICS	45 MANNING PARK	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
320172	CR BARD INC	129 CONCORD RD BLDG 3	BILLERICA	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
135937	CUMBERLAND FARMS 180215/2149	301 BOSTON RD	BILLERICA	FULDSP	FUEL DISPENSER
343760	EMERSON & CUMING	46 MANNING ROAD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
367460	EXXONMOBIL OIL CORP	441 BOSTON RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
131764	FURNITURE STRIPPING REFINISHING	2 INNIS DR	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
135674	GIBBS OIL 1631	295 BOSTON RD	BILLERICA	FULDSP	FUEL DISPENSER
326156	GSI LUMONICS	39 MANNING ROAD	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
31347	GUYS AUTO BODY & GLASS	INNIS DR BAY 1	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
834	H J ALLAN INC	32 LEXINGTON RD	BILLERICA	GROUND	GROUNDWATER DISCHARGE
351685	HYSTER NEW ENGLAND INC	159 RANGEWAY RD	BILLERICA	PLANT	AIR QUALITY PERMIT
205539	INDEPENDENT FINISHING CO INC	1 ESQUIRE RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
331277	IRIS GRAPHICS	3 FEDERAL STREET	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
209520	JIMS AUTOMOTIVE SERVICE	246 NASHUA RD	BILLERICA	FULDSP	FUEL DISPENSER
291365	LAB ENGINEERING & MANUFACTURING INC	16 REPUBLIC RD	BILLERICA	DISCH	AIR QUALITY PERMIT
923	MIDDLESEX COUNTY HOUSE OF CORRECTION	269 TREBLE COVE RD	BILLERICA	SURFAC	SURFACE WATER DISCHARGE
368846	MYKROLIS CORPORATION	129 CONCORD ROAD	BILLERICA	PLANT	AIR QUALITY PERMIT
368846	MYKROLIS CORPORATION	129 CONCORD ROAD	BILLERICA	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
29874	NEW ENGLAND FRAME CO	335 BOSTON RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
366730	NORTEL NETWORKS INC	2 WALL ST	BILLERICA	PLANT	RES APPLICATION APPROVED
32045	OPTICAL DIAGNOSTOC SYSTEMS	46 MANNING RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133453	PAN TEC INC	12 REPUBLIC RD	BILLERICA	DISCH	AIR QUALITY PERMIT
292182	PATRIOT MACHINE AND ENGINEERING	11 ESQUIRE RD	BILLERICA	DISCH	AIR QUALITY PERMIT
370192	PERKIN ELMER LIFE SCIENCES INC	331 TREBLE COVE ROAD	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
291368	PV ENGINEERING & MANUFACTURING INC	18 REPUBLIC RD	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
205536	ROBERTO JOSEPH INC	SULLIVAN RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
29384	SALS AMOCO	299 BOSTON RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
135862	SHIELDS SYSTEM OF BILLERICA INC	455 BOSTON RD	BILLERICA	FULDSP	FUEL DISPENSER
35108	T F BOYLE TRANSPORTATION INC	15 RIVERHURST RD	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
186931	TRANS MATE PRODUCTS INC	13 STERLING RD	BILLERICA	TURRPT	LARGE QUANTITY TOXICS USER
327226	TURNPIKE MOBIL	612 MIDDLESEX TNPK	BILLERICA	FULDSP	FUEL DISPENSER
298523	WALGREENS 2011	446 BOSTON RD	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
177119	WILLIAMS AUTO ELECTRIC SERVICE INC	313 BOSTON RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
326006	MAIN ST MOBIL	460 MAIN ST	BOLTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
312294	ALPHAGRAPHICS	192 SUDBURY RD	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
295349	ANDERSON PHOTO	14 WALDEN ST	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
326209	AVAYA INC	300 BAKER AVE	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
324522	BROOKS PHARMACY 361	71 LOWELL RD UNIT B1	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
336939	BUDGET PRINTING OF CONCORD	195 SUDBURY RD	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
338419	CLEAR WAY SEWER & DRAIN SERVICE	821 STRAWBERRY HL	CONCORD	DISCH	MWRA SEWER CONNECTION
369348	CONCORD CARLISLE REGIONAL HIGH SCHOOL	500 WALDEN ST	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37085	CONCORD COMPOSTING SITE	755 WALDEN ST	CONCORD	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
36950	CONCORD FIRE DEPT	209 WALDEN ST	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
39182	CONCORD LANDFILL	RTE 2 RTE 126 WALDEN POND RD	CONCORD	SLF	LANDFILL
29480	CONCORD MAIL ORDER CO INC	61 DOMINO DR	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
34365	CONCORD PUBLIC WORKS	133 KEYES RD	CONCORD	FULDSP	FUEL DISPENSER
135823	CONCORD PUMP N PANTRY	1089 CONCORD TPKE	CONCORD	FULDSP	FUEL DISPENSER
942	CONCORD WWTF	133 KEYES RD	CONCORD	SURFAC	SURFACE WATER DISCHARGE
376476	CONOCOPHILLIPS EXXON 2634811	503 COMMONWEALTH AVE	CONCORD	FULDSP	FUEL DISPENSER
317524	DR HERBERT BADER	290 BAKER AVE	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
326734	DR IVAN ORUP	290 BAKER AVE STE 204	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
365674	DR MINGCHUN CHIEN	290 BAKER AVE	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
326152	FENN SCHOOL	516 MONUMENT ST	CONCORD	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
223232	MA HIGHWAY SITE 62	215 ELM ST	CONCORD	FULDSP	FUEL DISPENSER
130600	MCI CONCORD	965 ELM ST	CONCORD	PLANT	AIR QUALITY PERMIT
332055	METROPOLITAN LIFE INSURANCE COMPANY	300 BAKER AVE STE B	CONCORD	PLANT	RES APPLICATION APPROVED
1016	MIDDLESEX SCHOOL WASTEWATER TREATMENT	1400 LOWELL RD	CONCORD	SURFAC	SURFACE WATER DISCHARGE
334199	MINUTEMAN NATIONAL PARK	174 LIBERTY ST	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
117726	MINUTEMAN PRINTING CORP	20 BEHARRELL ST	CONCORD	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
318072	NASHAWTUC COUNTRY CLUB	1861 SUDBURY RD	CONCORD	GROUND	AIR QUALITY PERMIT
325180	NASHAWTUC COUNTRY CLUB	1861 SUDBURY RD	CONCORD	GROUND	GROUNDWATER DISCHARGE
135822	NINE ACRES AUTO SERVICE	185 FITCHBURG TPKE	CONCORD	FULDSP	FUEL DISPENSER
371475	PERIOD REALTY TRUST	100 MAIN ST	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
133696	PRIESTS CLEANING SERVICE	57 THOREAU ST	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
205559	RADIOLOGY INC OF CONCORD	747 MAIN ST	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
334201	ROBERT M SNAY LANDSCAPE CONST INC	442 FITCHBURG TPKE	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
303509	STARMET CORPORATION	2229 MAIN ST	CONCORD	TURRPT	LARGE QUANTITY TOXICS USER
37739	SWEDISH MOTOR WORKS INC	256 COMMONWEALTH AVE	WEST CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
319989	TEXACO SERVICE STATION	686 ELM ST	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
366151	TOSCO CORP	503 COMMONWEALTH AVE	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
28036	A & J AUTO BODY	65 BEAVER ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
330694	AAMCO TRANSMISSIONS	740 WORCESTER RD	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
312991	ABC COPY PRINTING CENTER	56 FRANKLIN ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
52220	ADESA AUCTION OF BOSTON	63 WESTERN AVE	FRAMINGHAM	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
678	ALPHA ANALYTICAL LABS	116 IRVING ST	FRAMINGHAM	GROUND	GROUNDWATER DISCHARGE
207273	ANTONS CLEANERS	795 WATER ST	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
209195	AOUDE PETROLEUM CORP GULF	655 WAVERLY ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
280444	APPLIED BIOSYSTEMS	1455 CONCORD ST UNIT 8	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
257420	APPLIED BIOSYSTEMS	500 OLD CONNECTICUT PATH	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
9395	AT&T FRAMINGHAM	825 WAVERLY ST	FRAMINGHAM	PLANT	RES APPLICATION APPROVED
28865	AUTO & TRUCK INC	105R IRVING ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

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361182	AUTOMOTIVE SERVICE ASSOC	290 1 2 IRVING ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
29598	BAY STATE LINCOLN MERCURY INC	571 WORCESTER RD	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
308175	BERNARDI TOYOTA	1626 WORCESTER RD	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
52377	BETHANY HEALTH CARE	97 BETHANY RD	FRAMINGHAM	PLANT	AIR QUALITY PERMIT
282394	BIO MEDICAL APPLICATIONS OF FRAMINGHAM	4 VERNON ST	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
215598	BJS WHOLESALE CLUB	26 WHITTIER ST	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
366763	BNY REALITY LLC CONCORD STREET AUTOMOTIV	506 CONCORD ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
340822	BODY MOTION AUTO FRAME REPAIR	90 EAMES ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
221323	BOSE CORPORATION	145 PENNSYLVANIA AVE	FRAMINGHAM	PLANT	AIR QUALITY PERMIT
244920	BOSE CORPORATION	1 NEW YORK AVE	FRAMINGHAM	TURRPT	LARGE QUANTITY TOXICS USER
311116	CAMERON MIDDLE SCHOOL	215 ELM ST	FRAMINGHAM	PLANT	AIR QUALITY PERMIT
29581	CENTRAL TIRE & SERVICE CO INC	615 OLD CONNECTICUT PATH	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325747	CENTRE PRINT COPY	5 EDGELL RD	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
291006	COMMUNITY NEWSPAPER CO DBA	33 NEW YORK AVE	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
265513	COMPUTERWORLD	500 OLD CONNECTICUT PATH BLDGC	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

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376490	CONOCOPHILLIPS EXXON 2634695	730 COCHITUATE RD	FRAMINGHAM	FULDSP	FUEL DISPENSER
376492	CONOCOPHILLIPS EXXON 2634809	876 EDGELL RD	FRAMINGHAM	FULDSP	FUEL DISPENSER
323653	CSX TRANSPORTATION	50 PEARL ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
126395	CUMBERLAND GULF 118546	1287 WORCESTER RD	FRAMINGHAM	FULDSP	FUEL DISPENSER
130546	CUSHING HOSPITAL	DUDLEY RD	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133649	DE COLLIBUS AUTO BODY INC	609 WAVERLY ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
337985	ETHNIC GOURMET FOODS	190 FOUNTAIN ST	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
28890	EUROPEAN ENGINEERING	80 FOUNTAIN ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
215552	EXCEPTIONAL AUTO BODY	2 HENRY ST	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
306583	EXELON FRAMINGHAM LLC	LELANDS ST	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
177586	EXXON CO USA 35120	918 WAVERLY ST AND FAY RD	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
30819	FINE DENTAL LAB INC	235 WALNUT ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
27687	FIRST STUDENT TRANSPORTATION SERVICES	47 NEW YORK AVE	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
38065	FOSTER MILLER INC	1 WATSON PL	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
338594	FRAMINGHAM ANIMAL HOSPITAL	1415 EDGELL RD	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
333804	FRAMINGHAM AUTO REPAIR	12 FREDERIC ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS

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139025	FRAMINGHAM COUNTRY CLUB INC	65 GATES ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
339320	FRAMINGHAM DEPARTMENT OF PUBLIC WORKS	100 WESTERN AVE	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133644	FRAMINGHAM FORD	1200 WORCESTER RD	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
10133	FRAMINGHAM STATE COLLEGE	100 STATE ST	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
130541	GENERAL CHEMICAL CORPORATION	138 LELAND ST	FRAMINGHAM	PLANT	AIR QUALITY PERMIT
215545	GENZYME	76 NEW YORK AVE	FRAMINGHAM	PLANT	AIR QUALITY PERMIT
214998	GENZYME CORPORATION	31 NEW YORK AVE	FRAMINGHAM	PLANT	AIR QUALITY PERMIT
282900	GENZYME CORPORATION	45 NEW YORK AVE	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
282896	GENZYME CORPORATION	78 NEW YORK AVE	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
127749	GENZYME CORPORATION	1 MOUNTAIN RD	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
114994	GENZYME CORPORATION	51 NEW YORK AVE	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
209458	GETTY 30601	701 COCHITUATE RD	FRAMINGHAM	FULDSP	FUEL DISPENSER
135817	GETTY 30680	516 UNION AVE	FRAMINGHAM	FULDSP	FUEL DISPENSER
135814	GETTY 30700	1660 WORCESTER RD	FRAMINGHAM	FULDSP	FUEL DISPENSER
319273	GLOBAL STATION	324 WAVERLY ST	FRAMINGHAM	FULDSP	FUEL DISPENSER
130548	GOOD HUMOR BREYERS ICE CREAM	490 OLD CONNECTICUT PATH	FRAMINGHAM	TURRPT	LARGE QUANTITY TOXICS USER

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130548	GOOD HUMOR BREYERS ICE CREAM	490 OLD CONNECTICUT PATH	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
282987	GREAT SPRING WATERS OF AMERICA	105 PENNSYLVANIA AVE	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
357977	HESS 21312	284 HOLLIS ST	FRAMINGHAM	FULDSP	FUEL DISPENSER
295599	ICL IMAGING	51 MELLEN ST	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
130550	INTERNATIONAL PAPER CO	125 PENNSYLVANIA AVE	FRAMINGHAM	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
332309	J&R AUTO BODY SUPPLY COMPANY	82 HERBERT ST REAR	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133648	JIFFY LUBE	874 EDGELL RD	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
36233	K & S ASSOCIATION	67 BEAVER ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
28768	LAKESIDE GARAGE INC	461 HOLLIS ST RTE 126	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133021	LEASEWAY MOTOR CAR TRANSPORT COMPANY	35 WESTERN AVE	FRAMINGHAM	HANDLR	RECYCLER - BURNER/BLENDER
326176	LONG AUTO BODY COLLISION CENTER	635 WAVERLY ST	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
37591	LOW COST AUTO RENTALS INC	46 WATER ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
33905	MA NATIONAL GUARD	522 CONCORD ST	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
208027	MAACO AUTO PAINTING & BODY WORK	874 EDGELL RD	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
135813	MAGUIRES INC	669 WORCESTER RD	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
28044	MASTER SERVICE INC	170 WAVERLY	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

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36468	MERCHANTS TIRE CO	11 BLANDIN AVE	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
362539	METRO WEST CLEANERS	41 WAVERLY ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
193791	METRO WEST HEALTH INC	475 FRANKLIN ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
317023	METRO WEST SURGICAL ASSOCIATION	85 LINCOLN ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
34582	METRO WEST TRANSMISSIONS INC	150R SPEEN ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327619	METROWEST MEDICAL CENTER	115 LINCOLN ST	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
331017	MIDWAY MOTORS	510 COCHITUATE RD	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
215008	MIKES TEXACO	1060 OLD CONNECTICUT PATH	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
367568	MOBIL 11295	1063 WORCESTER RD	FRAMINGHAM	FULDSP	FUEL DISPENSER
367614	MOBIL 11821	696 COCHITUATE RD	FRAMINGHAM	FULDSP	FUEL DISPENSER
215630	MOBIL OIL CORP SS KFA	MM 114 MASSACHUSETTS TPKE	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
207192	MURPHYS AUTOMOTIVE INC	846 CONCORD ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
35577	MURRAY E C	66 SOUTH ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133026	NORTHEAST RUBBER PRODUCTS INC	110 ALEXANDER ST	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
317007	PETROBRAS AUTO GARAGE	220 HOWARD ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
205533	PRECISION PERFORMANCE	316 WAVERLY ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
	REPAIR				
215609	REMPAK INC	763 WAVERLY ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
28043	RH LONG MOTOR SALES CO	624 WAVERLY ST	FRAMINGHAM	FULDSP	FUEL DISPENSER
135710	RIVERSIDE MOBIL INC	1530 CONCORD ST	FRAMINGHAM	FULDSP	FUEL DISPENSER
51989	ROSENFELD CONCRETE CORPORATION	770 COCHITUATE RD	FRAMINGHAM	TURRPT	LARGE QUANTITY TOXICS USER
34612	ROUTE 135 AUTO SALES INC	308 WAVERLY ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
358958	SAXONVILLE CLEANERS	55 NICHOLAS RD	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325454	SHELL 137758	480 FRANKLIN ST	FRAMINGHAM	FULDSP	FUEL DISPENSER
325455	SHELL 137759	543 OLD CONNECTICUT PATH	FRAMINGHAM	FULDSP	FUEL DISPENSER
325457	SHELL 137760	846 CONCORD ST	FRAMINGHAM	FULDSP	FUEL DISPENSER
31985	SHOCK AUTO BODY INC	204 WAVERLY ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
245136	SOUTH MIDDLESEX RADIOLOGY	70 FRANKLIN ST	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
336209	STOCK CAR GARAGE GRP	220 HOWARD ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132343	SUBURBAN SHELL SERVICE	543 OLD CONNECTICUT PATH	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133019	SULLIVANS SERVICE	749 WORCESTER RD	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130556	SUPERIOR PROCESS CO INC	4 TRIPP ST	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE

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133020	T J 1 HOUR DRYCLEANING	151 COCHITUATE RD	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
285659	TAJ GOURMET FOODS	190 FOUTAIN ST	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
325166	TEXACO 100100	1060 OLD CONNECTICUT PATH	FRAMINGHAM	FULDSP	FUEL DISPENSER
319985	TEXACO SERVICE STATION	230 WAVERLY ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
34860	THOMPSONS AUTO BODY	2 RHOBENA ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133650	TIRE PROS INC	157 UNION AVE	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131883	TOFANI COACHWORKS INC	332 IRVING ST	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
33525	TOFANIS AUTO BODY INC	8 CAMPBELL ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
36616	TOMMYS TAXI INC	167 FRANKLIN ST	FRAMINGHAM	FULDSP	FUEL DISPENSER
364407	TOSCO CORP	730 COCHITUATE RD	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
364411	TOSCO CORP	876 EDGELL RD	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
28045	TOSTIS SERVICE STATION INC	47 WAVERLY ST	FRAMINGHAM	FULDSP	FUEL DISPENSER
53511	TOWN OF FRAMINGHAM	150 CONCORD ST	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
52427	TRIRAM CORP	721 WAVERLY ST	FRAMINGHAM	PLANT	AIR QUALITY PERMIT
313755	US PETROLEUM	206 UNION AVE	FRAMINGHAM	FULDSP	FUEL DISPENSER
127355	US POSTAL SERVICE	330 COCHITUATE RD	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
33088	VERIZON 565213	146 LELAND ST	FRAMINGHAM	FULDSP	FUEL DISPENSER
332188	VERIZON NEW ENGLAND INC	41 UNION AVE	FRAMINGHAM	PLANT	AIR QUALITY PERMIT
285905	VILLAGE PHOTO AND VIDEO CENTER	861 EDGELL RD	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
297066	WALGREENS #1855	15 SCHOOL ST	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
297068	WALGREENS #2861	653 WORCESTER RD	FRAMINGHAM	DISCH	MWRA SEWER CONNECTION
312044	WING PRESS	59 BEAVER ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
328613	YANKEE FURNITURE	763 WAVERLY ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
328613	YANKEE FURNITURE	763 WAVERLY ST	FRAMINGHAM	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
328613	YANKEE FURNITURE	763 WAVERLY ST	FRAMINGHAM	TURRPT	LARGE QUANTITY TOXICS USER
328613	YANKEE FURNITURE	763 WAVERLY ST	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
328613	YANKEE FURNITURE	763 WAVERLY ST	FRAMINGHAM	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
328613	YANKEE FURNITURE	763 WAVERLY ST	FRAMINGHAM	SURFAC	SURFACE WATER DISCHARGE
328613	YANKEE FURNITURE	763 WAVERLY ST	FRAMINGHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
288334	RAYS SERVICE CENTER	105 AYER RD	HARVARD	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
302683	ABBOTTWOOD CONDO	97 ASH ST	HOPKINTON	GROUND	GROUNDWATER DISCHARGE
134023	ARTS AUTO BODY	102 EAST MAIN ST	HOPKINTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
130904	HOPKINTON LNG AIR PRODUCTS COMM GAS	52 WILSON ST	HOPKINTON	TURRPT	LARGE QUANTITY TOXICS USER
117348	MATEC APPLIED SCIENCES	75 SOUTH ST	HOPKINTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130903	TENNESSEE GAS PIPELINE STA 267	54 WILSON ST	HOPKINTON	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
132710	VALPEY FISHER CORP	75 SOUTH ST	HOPKINTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
310981	VILLAGE PRINT	44 HAYDEN ROWE	HOPKINTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
291860	ZYMARK CORP	68 ELM ST	HOPKINTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
318672	ZYMARK CORP	70 ELM ST	HOPKINTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
318672	ZYMARK CORP	70 ELM ST	HOPKINTON	FULDSP	FUEL DISPENSER
373539	ACT ELECTRONICS INC	108 FOREST AVE	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
306913	ACT ELECTRONICS INC	2 CABOT RD	HUDSON	PLANT	AIR QUALITY PERMIT
319242	ALLSAN ENG	15 BROAD ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
229646	ARROW AUTOMOTIVE INDUSTRIES	555 REAR MAIN ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
271174	ASSABET LAPPING INC	8 KANE INDUSTRIAL DR	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
133702	ASSABET MACHINE CORP	78 CHERRY ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
36014	ASSABET VALLEY AUTO REBUILDERS	15 COOLIDGE ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
296380	BICKMORE INC	577 MAIN ST	HUDSON	HANDLR	BELOW HAZARDOUS WASTE REG LEVELS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
316460	BILLS PAINTING & WALLCOVERING INC	171 WASHINGTON ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
300048	BOYD COATINGS & PAINTS CO	51 PARMENTER RD	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131429	COATINGS BOYD RESEARCH CO INC	51 PARMENTER RD	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132297	CASACELI TRUCKING INC	5 COLLIDGE ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
34355	CERTIFIED REPAIR	15 COOLIDGE ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
262733	CONTINENTAL CITGO STATION	706 MAIN ST	HUDSON	FULDSP	FUEL DISPENSER
262733	CONTINENTAL GULF STATION	706 MAIN ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131939	COUNTRYSIDE MOTORS	401 RIVER RD	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
136772	CUMBERLAND FARMS 2049	200 WASHINGTON ST	HUDSON	FULDSP	FUEL DISPENSER
136787	CUMBERLAND FARMS 2113	87 CENTRAL ST	HUDSON	FULDSP	FUEL DISPENSER
361297	D&R PRODUCTS CO INC	455 RIVER RD	HUDSON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
133152	DITRIC OPTICS INC	312 MAIN ST	HUDSON	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
130609	ENTWISTLE CO	BIGELOW ST	HUDSON	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
51703	FARLEY SCHOOL	155 APSLEY RD	HUDSON	PLANT	AIR QUALITY PERMIT
204609	HATCH & SONS AUTOMOTIVE INC AUTO BODY	420 MAIN ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
292016	HOLOGRAPHIX LLC	577 MAIN ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

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106755	HUDSON DPW	1 MUNICIPAL DR	HUDSON	FULDSP	FUEL DISPENSER
131430	HUDSON LIGHT & POWER DEPT	49 FOREST AVE	HUDSON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
130608	HUDSON LOCK INC	81 APSLEY ST	HUDSON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
292079	HUDSON PODIATRY	439F MAIN ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
371286	HUDSON RESTORATION	157 WASHINGTON ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132594	HUDSON WWTF	1 MUNICIPAL DR	HUDSON	SURFAC	SURFACE WATER DISCHARGE
306108	INTEL CORP	75 REED RD	HUDSON	TURRPT	LARGE QUANTITY TOXICS USER
306108	INTEL CORP	75 REED RD	HUDSON	PLANT	RES APPLICATION APPROVED
131942	JAYS AUTO BODY	113A APSLEY ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
245800	KAMAN AEROSPACE EDC	2 FOX RD	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131428	KANE PERKINS CO INC	560 MAIN ST	HUDSON	PLANT	AIR QUALITY PERMIT
177828	LAPOINTE HUDSON BROACH CORP	569 MAIN ST	HUDSON	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
132596	LAROSSE H & SONS INC	15 BROAD	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130614	LUND INTERNATIONAL CORP	571 MAIN ST	HUDSON	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
364625	METROWEST DODGE	24 COOLIDGE ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133154	MIDDLESEX RESEARCH MFG CO INC	27 APSLEY ST	HUDSON	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS

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306610	NATES AUTO REPAIR	15 COOLIDGE ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133155	NEW ENGLAND TAPE CO	30 TOWER ST	HUDSON	PLANT	AIR QUALITY PERMIT
133155	NEW ENGLAND TAPE COMPANY	30 TOWER ST	HUDSON	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
283569	OCONNELLS CONVENIENCE PLUS 26	350 MAIN ST	HUDSON	FULDSP	FUEL DISPENSER
136719	PARENTE SERVICE CENTER	28 WASHINGTON ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
136719	PARENTE SERVICE INC	28 WASHINGTON ST	HUDSON	FULDSP	FUEL DISPENSER
292781	PERCUOCO CHIROPRACTIC OFFICE PC	213 MAIN ST SUITE 4	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
335606	PHOENIX PRECISION INC	312 MAIN ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
291961	REPOWER INDUSTRIES	406 MAIN ST	HUDSON	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
133701	RICHS AUTO PARTS INC	562 MAIN ST	HUDSON	HANDLR	RECYCLER - BURNER/BLENDER
131427	S&F CONCRETE CONTRACTORS INC	166 CENTRAL ST	HUDSON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
356780	SALEM SERVICE DBA MOBIL LUBE & OIL	457 MAIN ST	HUDSON	FULDSP	FUEL DISPENSER
344553	SANTINOS AUTOMOTIVE INC	27 WASHINGTON ST	HUDSON	FULDSP	FUEL DISPENSER
325475	SHELL 137769	181 MAIN ST	HUDSON	FULDSP	FUEL DISPENSER
336734	STOW PARTNERS LLC	43 BROAD ST	HUDSON	PLANT	AIR QUALITY PERMIT

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32746	STYPHER CORP THE	34 TOWER ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
126417	SUNOCO 0021 3116	422 MAIN ST	HUDSON	FULDSP	FUEL DISPENSER
333368	SUPER STOP & SHOP # 86	10 TECHNOLOGY DR	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
230124	SUTEK	14 BRENT DR	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
331861	SYNQOR LLC	188 CENTRAL ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
301778	TESSIER MACHINE CO	526 MAIN ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
303906	THERMALOGIC CORP	22 KANE INDUSTRIAL DR	HUDSON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
378396	TOWN LINE COLLISION	706 MAIN ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
	TUCKS SERVICE CENTER INC	BROAD ST & WASHINGTON ST		HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
285313	TUCKS TRUCK SALES INC	244 WASHINGTON ST	HUDSON	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
260242	VULCAN INDUSTRIES INC	4 CABOT RD	HUDSON	DISCH	INDUSTRIAL WASTE WATER TO SEWER
298586	WALMART STORE #1970	265 WASHINGTON ST	HUDSON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
130615	WALTON CHASE ELASTOMERS INC	29 APSLEY ST	HUDSON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130615	WALTON CHASE ELASTOMERS INC	29 APSLEY ST	HUDSON	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
130615	WALTON CHASE ELASTOMERS INC	29 APSLEY ST	HUDSON	TURRPT	LARGE QUANTITY TOXICS USER
130615	WALTON CHASE ELASTOMERS INC	29 APSLEY ST	HUDSON	FULDSP	FUEL DISPENSER

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130615	WALTON CHASE ELASTOMERS INC	29 APSLEY ST	HUDSON	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
363210	RD MCCART INC	110 CONCORD RD	LINCOLN	HANDLR	AIR QUALITY PERMIT
840	270 BEECH STREET REALTY TRUST	170 WEST MAIN ST	MARLBOROUGH	GROUND	GROUNDWATER DISCHARGE
266315	ADVANCED ENVIRONMENTAL TECH SERVICE	398 CEDAR HILL ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
221343	AFFORDABLE AUTO BODY	103 MECHANIC ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
228473	ANACOMP	5 MT ROYAL AVE	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
264379	APEX AUTOMOTIVE ENG	103 MECHANIC ST	MARLBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
342532	AXCEL PHOTONICS INC	45 BARTLETT ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
297777	BATH GENIE INC	20 RIVER ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
318347	BOBS AUTO	279 MAPLE ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
229304	BOSTON OPTICAL FIBER INC	45 BARTLETT ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130587	BROX PAVING MATERIAL	181 MILL ST	MARLBOROUGH	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
369099	BUTCHER CO THE	120 BARTLETT ST	MARLBOROUGH	TURRPT	LARGE QUANTITY TOXICS USER
266023	CIRCLE M GAS	424 LINCOLN ST	MARLBOROUGH	FULDSP	FUEL DISPENSER
315465	CLAUDE COMAS	126 UNION ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
376332	CONOCOPHILLIPS EXXON 2634724	410 LAKESIDE AVE	MARLBOROUGH	FULDSP	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131918	CONSTRUCTION MATERIALS SERVICE INC	379 SOUTH ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
379823	CONSUMER AUTO PARTS INC	31 MAIN ST	MARLBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
302012	CORNING NETOPTIX INCORPORATED	170 LOCKE DR	MARLBOROUGH	TURRPT	LARGE QUANTITY TOXICS USER
307226	CUPLEX EAST	410 FOREST ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
304271	FIDELITY INVESTMENTS	397 WILLIAMS ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
299764	FINAL PROCESS POLISHING CO	83 MILL ST #9 10 11	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130590	GOTHAM INK OF NEW ENGLAND	255 EAST MAIN ST	MARLBOROUGH	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
368774	HEWLETT PACKARD CORP	200 FOREST ST	MARLBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
221345	JIMS TRUCK STOP	103 MECHANIC ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
261915	KCR AUTO BODY	103 MECHANIC ST	MARLBOROUGH	PLANT	AIR QUALITY PERMIT
133684	KENS FOODS INC	1 DANGELO DR	MARLBOROUGH	DISCH	INDUSTRIAL WASTE WATER TO SEWER
221336	KEVINS AUTOMOTIVE	103 MECHANIC ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
308762	KING AUTO REPAIR	393 SOUTH ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133144	KITTREDGE ENGINEERING	583 BERLIN RD	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
221349	KSINAIS DADS AUTOMOTIVE	103 MECHANIC ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS

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356591	LUCENT TECHNOLOGIES INC	55 FAIRBANKS BLVD	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
303424	MACK TECHNOLOGIES INC	401 ELM ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37595	MARK ASSOC INC	109 FITCHBURG ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
293580	MARLBORO ANIMAL HOSPITAL	441 LAKESIDE AVE	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
5553	MARLBORO EASTERLY TREATMENT PLANT	860 BOSTON POST RD	MARLBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
290161	MARLBORO NISSAN	740 BOSTON POST RD	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
317375	MARLBORO PLASTICS	1 DANGELO DR	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
296159	MARLBORO STATE RINK	451 BOLTON ST	MARLBOROUGH	HANDLR	BELOW HAZARDOUS WASTE REG LEVELS
131922	MARLBOROUGH HOSPITAL	57 UNION ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
1008	MARLBOROUGH WESTERLY WWTP	303 BOUNDARY ST	MARLBOROUGH	SURFAC	SURFACE WATER DISCHARGE
130593	MASS CONTAINER CORP	300 CEDAR HILL RD	MARLBOROUGH	PLANT	AIR QUALITY PERMIT
130593	MASSACHUSETTS CONTAINER CORPORATION	300 CEDAR HILL RD	MARLBOROUGH	TURRPT	LARGE QUANTITY TOXICS USER
177890	MEDWASTE INC	311 MAPLE ST	MARLBOROUGH	HANDLR	TRANSPORTER OF HAZARDOUS WASTE
178765	MICROBAC LABORATORIES INC	181 CEDAR HILL ST	MARLBOROUGH	DISCH	MWRA SEWER CONNECTION
314448	MICROWAVE COMPONENTS & SYSTEEMS INC	583 BERLIN RD	MARLBOROUGH	DISCH	INDUSTRIAL WASTE WATER TO SEWER
299435	MIDLAND GRAPHICS INC	207 EAST MAIN ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

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221347	MJ AUTO SERVICE	103 MECHANIC ST	MARLBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
368144	MOBIL 12595	529 BOSTON POST RD	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
368144	MOBIL 12595	529 BOSTON POST RD	MARLBOROUGH	FULDSP	FUEL DISPENSER
320589	MORTE GRAPHICS INC DBA TOWN CRIER PRESS	64 CEDAR HILL ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325513	MOTIVA ENTERPRISES LLC	413 LAKESIDE AVE	MARLBOROUGH	DISCH	INDUSTRIAL WASTE WATER TO SEWER
283455	MWRA WACHUSETT RES WTR TREATMENT	88 DANGELO DR	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
272622	NAVIN ARENA	451 BOLTON ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
377549	NEES COMMUNICATIONS INC	34 ST MARTIN DR	MARLBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
33965	NISSAN OF MARLBORO	740 BOSTON POST RD RTE 20	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
117203	OPTIMA PRESS INC	329 MAPLE ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
221340	PAULS AUTO REPAIR	103 MECHANIC ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
295095	PHOTO MASTER INC	197 WEST BOSTON POST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
313437	PREMIER DIAGNOSTIC	320 BOLTON ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
229069	PROFESSIONAL AUTOMOTIVE	103 MECHANIC ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
253920	QUALEX INC	150 LOCKE DR	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS

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278947	QUALEX INC	60 BRIGHAM ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
323754	QUALEX INCORPORATED	398 CEDAR HILL RD	MARLBOROUGH	TURRPT	LARGE QUANTITY TOXICS USER
51724	RAYTHEON CO	1001 BOSTON POST RD	MARLBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
311633	RESERVOIR PRINTING INC	34 SIMARANO DR	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
34700	RICH PRODUCTS CORPORATION	40 CRANE MEADOW RD	MARLBOROUGH	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
288801	ROBERTSONS FURNITURE REFINISHING	81 MAPLE AVE	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
322680	ROTADYNE ROLL GROUP	33 HAYES MEMORIAL DR	MARLBOROUGH	TURRPT	LARGE QUANTITY TOXICS USER
367987	RULAND MFG CO INC	6 HAYES MEMORIAL DR	MARLBOROUGH	DISCH	INDUSTRIAL WASTE WATER TO SEWER
325512	SHELL 116790	342 BOSTON POST RD	MARLBOROUGH	FULDSP	FUEL DISPENSER
325514	SHELL 137790	431 LINCOLN ST	MARLBOROUGH	FULDSP	FUEL DISPENSER
130595	SHIPLEY COMPANY INC	455 FOREST ST	MARLBOROUGH	TURRPT	LARGE QUANTITY TOXICS USER
306416	SIR SPEEDY INC 81360	160 MAIN ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
369600	SUN CLEANERS	168 PLEASANT ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
178162	TECOMET ETCHED PRODUCTS	34 ST MARTIN DR	MARLBOROUGH	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
298660	TJ CLEANERS	329 MAPLE ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
270951	US GEOLOGICAL SURVEY	28 LORD RD STE 280	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
254661	VULCAN INDUSTRIES INC	432 NORTHBORO RD	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
378493	WE CARE ENVIRONMENTAL LLC	860 BOSTON POST RD	MARLBOROUGH	TRSTN	HANDLER OF TOXICS
311818	WILLIAM AUTO SALES	283 LINCOLN ST	MARLBOROUGH	HANDLR	AIR QUALITY PERMIT
315463	WILLIAMS AUTO SALES	283 R LINCOLN ST	MARLBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
315463	WILLIAMS AUTO SALES	283 R LINCOLN ST	MARLBOROUGH	TURRPT	LARGE QUANTITY TOXICS USER
315463	WILLIAMS AUTO SALES	283 R LINCOLN ST	MARLBOROUGH	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
315463	WILLIAMS AUTO SALES	283 R LINCOLN ST	MARLBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
314465	A&L OF STOWE INC	49 RIVER ST	MAYNARD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131547	ACE QUICK OIL CHANGE	3 POWDER MILL RD	MAYNARD	HANDLR	RECYCLER - BURNER/BLENDER
305651	ASSABET MACK SERVICE INC	11 MILL ST	MAYNARD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
305613	AUTO MACHINE SERVICE INC	233 MAIN ST	MAYNARD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
305796	DR GLENN JACKSON	9 NASON ST	MAYNARD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
320141	HALAS SERVICE CENTER	170 MAIN ST	MAYNARD	FULDSP	FUEL DISPENSER
265728	JIFFY LUBE STORE 1341	3 POWDERMILL RD	MAYNARD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
339102	MAYNARD PODIATRY PC	1 PLEASANT ST	MAYNARD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132757	MAYNARD WASTEWATER TREATMENT PLANT	PINE HILL RD	MAYNARD	SURFAC	SURFACE WATER DISCHARGE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131057	MILL POND VILLAGE LIMITED PARTNERSHIP	146 MAIN ST	MAYNARD	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
368146	MOBIL 11764	260 MAIN ST	MAYNARD	FULDSP	FUEL DISPENSER
310983	QUALITY CLEANERS	49 RIVER ST	MAYNARD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
305045	SHORETTES AUTOMOTIVE INC	2 BROWN ST	MAYNARD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
209599	ABES AUTO REPAIR	2 SOUTH AVE	NATICK	PLANT	AIR QUALITY PERMIT
328617	ADVANTAGE AUTOMOTIVE	11 MIDDLESEX AVE	NATICK	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
36504	ARMS MERCHANT INC	32 WASHINGTON ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
316909	AUTO MAX SERVICE	104 WEST CENTRAL ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
281430	BERNARDI HONDA VW AUDI INC	960 WORCESTER RD	NATICK	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
126432	BEST PETROLEUM CO INC	924 WORCESTER ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
313822	BRIGHAM GILL MOTOR CARS INC	817 WORCESTER RD	NATICK	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
207960	CHAMPAGNE OFFSET INC	7 STRATHMORE RD	NATICK	PLANT	AIR QUALITY PERMIT
133795	CHARLES STREET AUTO BODY	20 SOUTH AVE	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
29696	COACH & CARRAIGE AUTO BODY INC	55 MIDDLESEX AVE	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
308653	CVS #2125	137 WEST CENTRAL ST	NATICK	DISCH	MWRA SEWER CONNECTION
35738	EUROPEAN PERFORMANCE	10 COCHITUATE ST	NATICK	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
	ENGINEERING				
337575	EXCELLENT CLEANERS	56 EAST CENTRAL ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
29606	FIRESTONE STORE	1362 WORCESTER RD	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133798	FOREIGN CAR CARE INC	76 SOUTH AVE	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
29609	FOREIGN MOTORS WEST INC	253 NORTH MAIN ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
318139	FOREIGN MOTORS WEST INC	28 RUTLEDGE RD	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
318137	FOREIGN MOTORS WEST INC	5 COCHITUATE ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
326154	FOREIGN MOTORS WEST INC	790 WORCESTER RD	NATICK	HANDLR	LARGE QUANTITY GENERATOR OF WASTE OIL OR PCBS
328203	HOGAN TIRE CENTERS INC	144 EAST CENTRAL ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
33398	JOEYS AUTO BODY & TOWING INC	47 SUMMER ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
28224	KILLDEER ENTERPRISES INC	840 WORCESTER RD	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
207658	MA ARNG	143 SPEEN ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
126433	MABARDYS GULF	36 SOUTH MAIN ST	NATICK	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
121047	MELS MOBIL MART	133 WEST CENTRAL ST	NATICK	FULDSP	FUEL DISPENSER
135836	MID TOWN MOBIL	78 NORTH MAIN ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
116586	MINUTEMAN PRESS	127 WEST CENTRAL ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
223287	NATICK AUTO	146 EAST CENTRAL ST	NATICK	FULDSP	FUEL DISPENSER
293676	NATICK AUTO SALES	135 WEST CENTRAL ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131456	NATICK PAPERBOARD CORPORATION	90 NORTH MAIN ST	NATICK	TURRPT	LARGE QUANTITY TOXICS USER
131456	NATICK PAPERBOARD CORPORATION	90 NORTH MAIN ST	NATICK	DISCH	MWRA SEWER CONNECTION
131456	NATICK PAPERBOARD CORPORATION	90 NORTH MAIN ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
362984	NATICK SATURN INC	1000 WORCESTER RD	NATICK	HANDLR	LARGE QUANTITY GENERATOR OF WASTE OIL OR PCBS
127406	NATICK SHELL SERVICE INC	225 NORTH MAIN ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
35597	NATICK TOWN OF D P W	48 MIDDLESEX AVE	NATICK	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
284117	OFC CORPORATION	2 MERCER RD	NATICK	DISCH	MWRA SEWER CONNECTION
320665	PAINT PROJECT INC THE	19 WILLOW ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
320568	PERFECTION AUTO BODY OF NATICK	104 WEST CENTRAL ST (REAR)	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
331219	PHOTO QUICK DBA	843 WORCESTER RD	NATICK	DISCH	MWRA SEWER CONNECTION
28225	RELIABLE CLEANERS INC	214 WEST CENTRAL ST	NATICK	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
295029	RITZ CAMERA CENTERS #293	1245 WORCESTER RD	NATICK	DISCH	MWRA SEWER CONNECTION
34625	SEARS 1403	1235 WORCESTER RD	NATICK	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
325599	SHELL 137805	225 NORTH MAIN ST	NATICK	FULDSP	FUEL DISPENSER

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319110	SIGMA ALDRICH RESEARCH BIOCHEMICALS INC	1 STRATHMORE RD	NATICK	DISCH	MWRA SEWER CONNECTION
337470	SUNOCO 0402 7363	924 WORCESTER RD	NATICK	FULDSP	FUEL DISPENSER
340732	TECHCOMMONS NATICK	330 SPEEN ST	NATICK	PLANT	AIR QUALITY PERMIT
133788	TOWNE AUTO PARTS INC	780 WORCESTER RD	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130698	US ARMY SOLDIER SYSTEMS COMMAND	15 KANSAS ST	NATICK	FULDSP	FUEL DISPENSER
130698	US ARMY SOLDIER SYSTEMS COMMAND	15 KANSAS ST	NATICK	DISCH	MWRA SEWER CONNECTION
130698	US ARMY SOLDIER SYSTEMS COMMAND	15 KANSAS ST	NATICK	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
130698	US ARMY SOLDIER SYSTEMS COMMAND	15 KANSAS ST	NATICK	PLANT	RES APPLICATION APPROVED
338647	VIDEO PARADISE OF NATICK	21 MAIN ST	NATICK	DISCH	MWRA SEWER CONNECTION
297089	WALGREENS #1851	148 WEST CENTRAL AVE	NATICK	DISCH	MWRA SEWER CONNECTION
52933	WARD PROCESS CO INC	5 COCHITUATE RD	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
36531	A B C AUTO SALE & SERVICE	130 EAST MAIN ST	NORTHBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
302034	ALL STATE POWER VAC	329 WEST MAIN ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132176	BAY STATE CIRCUITS	200 BARTLETT ST	NORTHBOROUGH	GROUND	GROUNDWATER DISCHARGE
364739	BUNZL EXTRUSION	170 BARTLETT ST	NORTHBOROUGH	PLANT	AIR QUALITY PERMIT
376666	CONOCOPHILLIPS EXXON 2634690	15 MAIN ST	NORTHBOROUGH	FULDSP	FUEL DISPENSER

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362521	DASILVA AUTO SALES	375 SOUTHWEST CUTOFF	NORTHBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
310985	FIBER OPTIC NETWORK SOLUTIONS CORP	71-79 LYMAN ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
247608	FRANCIS DOYLE PHOTOGRAPHERS	9 MONROE ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
126344	GETTY 30669	48 WEST MAIN ST	NORTHBOROUGH	FULDSP	FUEL DISPENSER
294085	GREAT AMERICAN CLEANERS OF NORTHBORO	299 WEST MAIN ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
127947	HERITAGE WELDING & FABRICATION	329 WEST MAIN ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
336264	LAB CONNECTIONS DIV OF MOCON	10 BEARFOOT RD	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
368168	MOBIL 11867	36 WEST MAIN ST	NORTHBOROUGH	FULDSP	FUEL DISPENSER
305459	NEW ENGLAND POWER SERVICE CO	55 BEARFOOT RD	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
265546	NEW NORTHBOROUGH CLEANERS	247 WEST MAIN ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
177054	NEWCORR PACKAGING	66 LYMAN ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
321407	NORTHBORO AUTOMOTIVE	200 BARTLETT ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132809	NORTHBOROUGH TOWN OF HIGHWAY	63 MAIN ST	NORTHBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
207317	NORTON CO	GODDARD RD	NORTHBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
125704	PALL FILTRON CORP	50 BEARFOOT RD	NORTHBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
281862	PETERSON SPRING	40 BEARFOOT RD	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

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314011	PROTOVISION INC	455 WHITNEY ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
320239	RICK DEWOLF	29 KING ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
314248	ROBERT G COSEO DDS	82 WEST MAIN ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
279082	SEARS 8193	104 OTIS ST	NORTHBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
360248	SHIRE BIOLOGICS INC	30 BEARFOOT RD	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
303041	SOUTHBORO DENTAL ASSOC	60 WEST MAIN ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
29055	SPRINGFIELD SUGAR & PRODUCT CO	175 BEAR FOOT RD	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131148	ST GOBAIN NORTON CO	GODDARD RD	NORTHBOROUGH	PLANT	AIR QUALITY PERMIT
373108	SUNOCO OF NORTHBORO	7 BELMONT ST	NORTHBOROUGH	FULDSP	FUEL DISPENSER
32952	SUNRISE CLEANERS	14 WEST MAIN ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
278291	VCA NORTHBORO ANIMAL HOSP	286 WEST MAIN ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131625	ZECCO INC	345 WEST MAIN ST	NORTHBOROUGH	HANDLR	HAZARDOUS WASTE TRANSFER, STORAGE, OR DISPOSAL FACILITY
131625	ZECCO INC	345 WEST MAIN ST	NORTHBOROUGH	FULDSP	FUEL DISPENSER
131625	ZECCO INC	345 WEST MAIN ST	NORTHBOROUGH	TURRPT	LARGE QUANTITY TOXICS USER
131625	ZECCO INC	345 WEST MAIN ST	NORTHBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
264339	CONWAY CENTRAL EXPRESS	625 HARTFORD TPKE	SHREWSBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
29293	ST JOHNSBURY TRUCKING CO INC	625 HARTFORD TPKE	SHREWSBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131854	SUPERCON INC	830 BOSTON TPKE	SHREWSBURY	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
131854	SUPERCON, INC.	830 BOSTON TPKE	SHREWSBURY	TURRPT	LARGE QUANTITY TOXICS USER
228695	TECHNICAL SALES & SERVICE INC	697 HARTFORD TURNPIKE RD	SHREWSBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
302703	ACORN STUDIOS	121 MAPLE ST	STOW	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
305853	ADCO FASTENING TOOLS	501 GLEASONDALE RD	STOW	HANDLR	AIR QUALITY PERMIT
308821	ADVANCE MACHINE CO INC	49 WHITE POND RD	STOW	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
301277	APPLE COUNTRY ANIMAL HOSPITAL	35 GREAT RD	STOW	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
306722	ASTRO WELDING & FABRICATING INC	45 WHITE POND RD	STOW	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
311769	CONCORD FUELS OF STOW	368 GREAT RD	STOW	FULDSP	FUEL DISPENSER
305804	LAZOTT PLASTICS CORP	501 GLEASONDALE RD	STOW	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
312696	MA DEM	1 STATE RD	STOW	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
332793	MEETING HOUSE STOW ELDERLY HOUSING	189 GREAT RD	STOW	GROUND	GROUNDWATER DISCHARGE
368178	MOBIL 11299	124 GREAT RD	STOW	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
177056	RADANT TECHNOLOGIES INC	255 HUDSON RD	STOW	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE

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305856	SCOTIA WOODWORKING	501 GLEASONDALE RD	STOW	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
344799	STOW CHIROPRACTIC	118 GREAT RD	STOW	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
306729	STOW HIGHWAY DEPT	380 GREAT RD	STOW	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
35945	UNDERGROUND PHOTO	117 GREAT RD STOW SHOPPING CTR	STOW	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
311766	AUTO DIAGNOSTICS	100 BOSTON POST RD	SUDBURY	FULDSP	FUEL DISPENSER
132622	CAVICCHIO GREENHOUSE	110 CODJER LN	SUDBURY	PLANT	AIR QUALITY PERMIT
33073	COLONIAL AUTO OF SUDBURY	430 BOSTON POST RD	SUDBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
177203	CUMBERLAND GULF 201325	470 BOSTON POST RD	SUDBURY	FULDSP	FUEL DISPENSER
367807	EXXONMOBIL OIL CORP	432 BOSTON POST RD	SUDBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133800	JP BARTLETT CO	578 BOSTON POST RD	SUDBURY	PLANT	RES APPLICATION APPROVED
52767	LINCOLN SUDBURY REGIONAL HIGH SCHOOL	390 LINCOLN ST	SUDBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
35547	MAURER FRANK CO INC	206 NORTH RD	SUDBURY	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
28451	METHODS MACHINE TOOLS INC	65 UNION AVE	SUDBURY	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
133801	MOSHER AUTO BODY INC	34 STATION RD	SUDBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133801	MOSHER AUTOBODY INC	34 STATION RD	SUDBURY	PLANT	AIR QUALITY PERMIT
130708	RAYTHEON COMPANY ESD	528 BOSTON POST RD	SUDBURY	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
324854	SEQUENOM INC	142-F NORTH RD	SUDBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
35843	STATION ROAD AUTO BODY & GARAGE INC	40 STATION RD	SUDBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
135851	SUDBURY AUTOMOTIVE INC	209 BOSTON POST RD	SUDBURY	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
374547	SUDBURY DEPARTMENT OF PUBLIC WORKS	20 BOSTON POST RD	SUDBURY	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
364295	SUDBURY PODIATRY	111 BOSTON POST RD	SUDBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
36831	SUDBURY TRANSFER & RECYCLING CENTER	20 BOSTON POST RD	SUDBURY	TRSTN	TRANSFER STATION FOR HAZARDOUS MATERIAL
185596	VILLAGE CLEANERS INC	621 BOSTON POST RD	SUDBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
376839	CONOCOPHILLIPS CIRCLE K 2705809	28 BOSTON POST RD	WAYLAND	FULDSP	FUEL DISPENSER
135841	COOKS AUTOMOTIVE (CONCORD OIL)	356 BOSTON POST RD	WAYLAND	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
135852	CUMBERLAND GULF 200604	130 MAIN ST	WAYLAND	FULDSP	FUEL DISPENSER
177638	EXXON CO USA 35692	28 BOSTON POST RD	WAYLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
367880	EXXONMOBIL OIL CORP	315 COMMONWEALTH RD	WAYLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
294468	GEM CLEANERS	312 COMMONWEALTH RD	WAYLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
254722	INTERNATIONAL AUTO BODY	118 MAIN ST	WAYLAND	DISCH	BELOW INDUSTRIAL WASTE WATER REG LEVELS
39856	OLD WAYLAND LANDFILL	RTE 20	WAYLAND	SLF	LANDFILL
135842	SHEPARDS MOBIL STA.	268 BOSTON POST RD.	WAYLAND	FULDSP	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
34923	STARMER DAVID TEXACO	338 BOSTON POST RD	WAYLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
209293	STARMER GAS	338 BOSTON POST RD	WAYLAND	FULDSP	FUEL DISPENSER
38090	SUNOCO 0005 3579	19 MAIN ST	WAYLAND	FULDSP	FUEL DISPENSER
186627	WAYLAND AUTOMOTIVE	322 COMMONWEALTH RD	WAYLAND	FULDSP	FUEL DISPENSER
304155	WAYLAND BUSINESS CENTER LLC	430 BOSTON POST RD	WAYLAND	PLANT	AIR QUALITY PERMIT
30802	WAYLAND COUNTRY CLUB	121 OLD SUDBURY RD	WAYLAND	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
265874	WAYLAND HIGHWAY GARAGE	195 MAIN ST	WAYLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
39853	WAYLAND SAND HILL LANDFILL	484 BOSTON POST ROAD	WAYLAND	SLF	LANDFILL
39853	WAYLAND SANDHILL LANDFILL	484 BOSTON POST ROAD	WAYLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
5585	WAYLAND WATER DEPT	41 COCHITUATE RD	WAYLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
328876	WAYLAND WMDC	430 BOSTON POST ROAD	WAYLAND	SURFAC	SURFACE WATER DISCHARGE
39854	WAYLAND/SUDBURY WWTP	490 BOSTON POST RD	WAYLAND	GROUND	GROUNDWATER DISCHARGE
39854	WAYLAND/SUDBURY WWTP	490 BOSTON POST RD	WAYLAND	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
39854	WAYLAND/SUDBURY WWTP	490 BOSTON POST RD	WAYLAND	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
294089	ACE CLEANERS	164 MILK ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
271172	ALL DENTAL	76 OTIS ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

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178625	ALPHA ANALYTICAL INC	8 WALKUP DR	WESTBOROUGH	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
344197	AMERICAN MACHINE CO	58 HOPKINTON RD	WESTBOROUGH	HANDLR	AIR QUALITY PERMIT
204328	AMERICAN SUPERCONDUCTOR	2 TECHNOLOGY DR	WESTBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
130627	ASTRAZENECA	50 OTIS ST	WESTBOROUGH	DISCH	INDUSTRIAL WASTE WATER TO SEWER
130627	ASTRAZENECA	50 OTIS ST	WESTBOROUGH	TURRPT	LARGE QUANTITY TOXICS USER
130628	BAY STATE ABRASIVES	12 UNION ST	WESTBOROUGH	SURFAC	SURFACE WATER DISCHARGE
130631	BULLARD ABRASIVE PRO	50 HOPKINTON RD	WESTBOROUGH	PLANT	AIR QUALITY PERMIT
131959	CARLSTROM PRESSED METAL INC	65 FISHER ST	WESTBOROUGH	GROUND	GROUNDWATER DISCHARGE
284032	CLOVERLEAF CHEVROLET	150 TNPK RD	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
134486	COLOR TECHNOLOGY INC	125 FLANDERS RD	WESTBOROUGH	DISCH	AIR QUALITY PERMIT
51014	CUMBERLAND FARMS INC	165 FLANDERS RD	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
134485	D N LUKENS INC	15 OLD FLANDERS RD	WESTBOROUGH	TURRPT	LARGE QUANTITY TOXICS USER
133729	DAVES FOUR CYLINDER SERVICE	50 HOPKINTON RD	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
136669	DB MART 33 TEXACO	240 TNPK RD	WESTBOROUGH	FULDSP	FUEL DISPENSER
302028	DUKE ENG & SERVICES	25 RESEARCH DR	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
191625	E L HARVEY & SONS INC	68 HOPKINTON RD	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
294098	ELITE CLEANERS	30 LYMAN ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
341936	EMC	4400 COMPUTER DR	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
253200	ERICKSON AUTO REPAIR SERVICE	32 EAST MAIN ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
361299	EXXON CO USA 32305	42 EAST MAIN ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
27466	FIBA TECHNOLOGIES INC	97 TURNPIKE RD	WESTBOROUGH	PLANT	AIR QUALITY PERMIT
345430	FORTY FOUR HUNDRED LIMITED PARTNERSHIP	4400 COMPUTER DR	WESTBOROUGH	PLANT	AIR QUALITY PERMIT
370013	GALAXY POWER INC	155 FLANDERS RD	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
204540	GANNON MOTORS INC	42 EAST MAIN ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
214575	GEM MOTORS INC	88 TNPK RD RT 9	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
136670	GETTY 30683	11 MILK ST	WESTBOROUGH	FULDSP	FUEL DISPENSER
321417	GLOBE SPECIALITY PRODUCTS	27 OTIS ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
36854	GOODALL & SONS TRACTOR CO INC	75 OTIS ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
299741	GRANITE PRESS	71 FISHER ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
326413	IKON	3 SASSACUS DR	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
2916	JIFFY LUBE	126 TURNPIKE RD	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
215802	KOPIN CORP	125 NORTH DR	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
367819	LEES CALIFORNIA CLEANERS	45 E MAIN ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
328264	MAGIC MOMENTS PHOTO BOUTIQUE	160 MILK ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
223176	MASSACHUSETTS ELECTRIC COMPANY	25 RESEARCH DRIVE	WESTBOROUGH	FULDSP	FUEL DISPENSER
368187	MOBIL 11680	130 TURNPIKE RD	WESTBOROUGH	FULDSP	FUEL DISPENSER
368185	MOBIL 17336	24 EAST MAIN ST	WESTBOROUGH	FULDSP	FUEL DISPENSER
177938	MOBIL OIL CORP SS G0H	105 MASS TNPK	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
240536	NE POWER SERVICE CO HEAT PUMP COMPLEX	25 RESEARCH DR	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
262864	NEW ENGLAND DIRECT	27 OTIS ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
254629	NEW ENGLAND POWER SERVICE	50 MILK ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130630	NEW ENGLAND POWER SERVICE CO	25 RESEARCH DR	WESTBOROUGH	HANDLR	TRANSPORTER OF HAZARDOUS WASTE
10825	NORTH STAR YOUTH FORUM	15 BRIDLE LN	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
130629	OSMONICS INC	125 FLANDERS RD	WESTBOROUGH	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
35533	PICARD SHELL	128 TNPK RD	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
290174	PRIDE CLEANERS	1 OAK ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
315747	PRIMARY COLORS	111 MILK ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
317482	PRO LOGO DESIGN	36 MILK ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131948	RIOUX ROY VOLKSWAGEN INC	233 TURNPIKE RD	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325844	SHELL 137888	27 EAST MAIN ST	WESTBOROUGH	FULDSP	FUEL DISPENSER
325845	SHELL 137889	128 TURNPIKE RD	WESTBOROUGH	FULDSP	FUEL DISPENSER
288449	SOLECTRON MASS CORP	1 SOLECTRON DR	WESTBOROUGH	DISCH	BELOW INDUSTRIAL WASTE WATER REG LEVELS
322614	SOLECTRON MASSACHUSETTS CORP	155 FLANDERS RD	WESTBOROUGH	TURRPT	LARGE QUANTITY TOXICS USER
288449	SOLECTRON MASSACHUSETTS CORPORATION	1 SOLECTRON DR	WESTBOROUGH	TURRPT	LARGE QUANTITY TOXICS USER
131951	STEDT HYDRAULIC CRANE CORP	27 WASHINGTON ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
326794	STOP & SHOP SUPERMARKET # 495	18 LYMAN ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
50976	STOROPACK INC	125 FLANDERS RD	WESTBOROUGH	PLANT	AIR QUALITY PERMIT
266021	TYREE ORG LTD	9 OTIS ST	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
859	VICAR REALTY TRUST	111 MILK ST	WESTBOROUGH	GROUND	GROUNDWATER DISCHARGE
37032	WESTBORO FIELD HEADQUARTERS	NORTH DR	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131955	WESTBORO MACHINE CO INC	66 HOPKINTON RD	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132601	WESTBORO STATE HOSP	18 LYMAN ST	WESTBOROUGH	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
132601	WESTBORO STATE HOSPITAL	18 LYMAN ST	WESTBOROUGH	PLANT	RES APPLICATION APPROVED
348661	WESTBORO SUNOCO SERVICE STATION	49 MILK ST	WESTBOROUGH	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132600	WESTBORO WWTF	238 TNPk RD	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
360869	WESTBOROUGH DPW	131 OAK ST	WESTBOROUGH	FULDSP	FUEL DISPENSER
269089	WHEELABRATOR EOS INC	238 TNPk RD	WESTBOROUGH	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
274390	WHITTIER REHAB AT WESTBORO	150 FLANDERS RD	WESTBOROUGH	DISCH	INDUSTRIAL WASTE WATER TO SEWER
132046	BOBS AUTO SERVICE	290 LITTLETON RD	WESTFORD	HANDLR	RECYCLER - BURNER/BLENDER
29719	KAY DEE AUTOMOTIVE ENG	147 CONCORD RD	WESTFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
348637	LUCENT TECHNOLOGIES INC	10 LIBERTY WAY	WESTFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37382	NARDONE CO	37 POWER RD	WESTFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS

UNDERGROUND STORAGE TANKS WITHIN BILLERICA'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
BAKER-WHITNEY OIL COMPANY	432 MASSACHUSETTS AVE	ACTON	PETR. DISTR	2
BURSAW GAS & OIL INC	94 GREAT RD	ACTON	GAS STATION	10
COLONIAL CHEVROLET	171 GREAT RD	ACTON	VEHICLE DEALER	4
CONCORD FUELS OF ACTON	68 CENTRAL ST	ACTON	GAS STATION	2
HAARTZ CORPORATION, THE	87 HAYWARD RD	ACTON	INDUSTRIAL	5
HIGHWAY GARAGE	14 FOREST RD	ACTON	MUNICIPAL	3
IDYLWILDE FARM INC	366 CENTRAL ST	ACTON	FARM	1
MOBIL #01-232	204 MAIN ST	ACTON	GAS STATION	4
MOBIL #01-PPO	44 GREAT RD	ACTON	GAS STATION	4
MOBIL S/S #01-JFH	553 MASSACHUSETTS AVE	ACTON	GAS STATION	4
PETRO PLUS	408 MASSACHUSETTS AVE	ACTON	GAS STATION	4
SHELL SERVICE STATION 22000600100	341 GREAT RD	ACTON	GAS STATION	3
SUNOCO #0005-2365	421 MASSACHUSETTS AVE	ACTON	GAS STATION	3
SUNOCO #0005-2670	336 GREAT RD	ACTON	GAS STATION	3
TOSCO #2634634	289 MAIN ST	ACTON	GAS STATION	5
W R GRACE & CO	51 INDEPENDENCE RD	ACTON	INDUSTRIAL	1

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
GETTY STATION #30392	61 HOMER AVE	ASHLAND	GAS STATION	4
HESS	196 POND ST	ASHLAND	GAS STATION	3
MARATHON MOBIL	103 W UNION ST	ASHLAND	GAS STATION	5
MOBIL #01-KAX	272 POND ST	ASHLAND	GAS STATION	4
SHELL SERVICE STATION 22002550105	123-127 UNION ST	ASHLAND	GAS STATION	3
USA GAS INC	119 POND ST	ASHLAND	GAS STATION	6
VERIZON MASSACHUSETTS	366 MAIN ST	ASHLAND	UTILITIES	1
MACINTOSH RD SEWER STATION	10 MACINTOSH RD	BEDFORD	OTHER	1
A RISI & SONS	64 RIVER RD	BERLIN	CONTRACTOR/INDUSTRIAL	1
BEN'S SERVICE STATION	51 WEST ST	BERLIN	GAS STATION	3
BERLIN TEXACO	265 CENTRAL ST	BERLIN	GAS STATION	3
COLDWELL'S INC	25 CENTRAL ST	BERLIN	BUILDING MATERIAL SUPPL.	1
TOSCO #2634705	139 COOLIDGE ST	BERLIN	GAS STATION	3
BILLERICA FIRE DEPARTMENT	8 GOOD ST	BILLERICA	MUNICIPAL	2
BILLERICA MEMORIAL HIGH SCHOOL	RIVER ST	BILLERICA	OTHER	1
BILLERICA POLICE DEPARTMENT	6 GOOD ST	BILLERICA	OTHER	1

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
GIBBS SERVICE STATION #7415	295 BOSTON RD	BILLERICA	GAS STATION	3
MICHAEL C CLERY	29 LEXINGTON RD	BILLERICA	FARM	1
MIDDLESEX HOUSE OF CORRECTION	269 TREBLE COVE RD	BILLERICA	STATE	2
MOBIL #01-301	441 BOSTON RD	BILLERICA	GAS STATION	4
SHIELD SYSTEM CAR WASH - SUNOCO	455 BOSTON RD	BILLERICA	GAS STATION	4
TRINITY REALTY TRUST	9 RIVERHURST RD	BILLERICA	TRUCK/TRANSPORT	2
TURNPIKE MOBIL	612 MIDDLESEX TURNPIKE	BILLERICA	GAS STATION	5
VERIZON MASSACHUSETTS	9 ANDOVER RD	BILLERICA	UTILITIES	1
BOLTON MOBIL	460 MAIN ST	BOLTON	GAS STATION	3
SMITH'S SALES INC	719 MAIN ST	BOLTON	GAS STATION	4
BOXBOROUGH HIGHWAY DEPARTMENT	577 MASSACHUSETTS AVE	BOXBOROUGH	OTHER	2
COLONIAL MOTORS	1211 MAIN ST	CONCORD	GAS STATION	5
CONCORD CITGO	107 LOWELL RD	CONCORD	GAS STATION	3
CUMBERLAND FARMS #2169	120 THOREAU ST	CONCORD	GAS STATION	3
E&S MOBIL SERVICES INC	166 COMMONWEALTH AVE	CONCORD	GAS STATION	4
EMERSON HOSPITAL	ROUTE 2 & ORNAC	CONCORD	OTHER	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
MASS CORRECTIONAL INSTITUTE	965 ELM ST	CONCORD	STATE	4
MOBIL #01-368	143 SUDBURY RD	CONCORD	GAS STATION	4
MOBIL #154	1112 MAIN ST	CONCORD	GAS STATION	5
NINE ACRES AUTO SERVICE INC	185 FITCHBURG TURNPIKE	CONCORD	GAS STATION	4
PUMP N PANTRY	1089 CONCORD TURNPIKE	CONCORD	GAS STATION	4
TEXACO SERVICE LOC #11-025-0060	686 ELM ST	CONCORD	GAS STATION	6
TOSCO #2634811	503 COMMONWEALTH AVE	CONCORD	GAS STATION	4
AMERICAN PRECAST CORPORATION	164 MEADOW ST	FRAMINGHAM	OTHER	1
AOUDE PETROLEUM CORPORATION	655 WAVERLY ST	FRAMINGHAM	GAS STATION	2
AT&T COMMUNICATIONS	825 WAVERLY ST	FRAMINGHAM	UTILITIES	1
AUTO-BRITE CAR WASH	105 HOLLIS ST	FRAMINGHAM	GAS STATION	4
AVERY DENNISON	300 HOWARD ST	FRAMINGHAM	INDUSTRIAL	5
BELL ATLANTIC (5652-07)	350 COCHITUATE RD	FRAMINGHAM	UTILITIES	2
BELL ATLANTIC GARAGE (5652-13)	146 LELAND ST	FRAMINGHAM	UTILITIES	1
BNY REALTY INC	506 CONCORD ST	FRAMINGHAM	GAS STATION	2
BOSE	1 NEW YORK AVE	FRAMINGHAM	INDUSTRIAL	1

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
C & N GAS	318-324 WAVERLY ST	FRAMINGHAM	GAS STATION	3
CLEAN MACHINE, THE	1181-1183 WORCESTER RD	FRAMINGHAM	GAS STATION	4
COMMUNITY NEWSPAPER COMPANY	33 NEW YORK AVE	FRAMINGHAM	INDUSTRIAL	2
CUMBERLAND GULF #118546	1287 WORCESTER RD	FRAMINGHAM	GAS STATION	5
DISCOUNT RENT A CAR	174 UNION AVE	FRAMINGHAM	GAS STATION	1
ENGINE 1	1055 WORCESTER RD	FRAMINGHAM	OTHER	1
ENGINE 5	520 CONCORD ST	FRAMINGHAM	OTHER	1
FIRST STUDENT	47 NEW YORK AVE	FRAMINGHAM	TRUCK/TRANSPORT	1
FRAMINGHAM CITGO DRAKE PETRO	1115 WORCESTER RD	FRAMINGHAM	GAS STATION	3
FRAMINGHAM COUNTRY CLUB	GATES ST	FRAMINGHAM	OTHER	1
FRAMINGHAM POLICE STATION - MAIN	1 WILLIAM WELCH WAY	FRAMINGHAM	MUNICIPAL	1
FRAMINGHAM SERVICE CENTER	15 BLANDIN AVE	FRAMINGHAM	UTILITIES	2
FRAMINGHAM MOBIL	22-24 WAVERLY ST	FRAMINGHAM	GAS STATION	2
GETTY STATION #30601	701 COCHITUATE RD	FRAMINGHAM	GAS STATION	4
GETTY STATION #30680	516 UNION ST	FRAMINGHAM	GAS STATION	2
GETTY STATION #30700	1660 WORCESTER RD	FRAMINGHAM	GAS STATION	2

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
GLEASONS GARAGE	35 CLAFLIN ST	FRAMINGHAM	PETR. DISTR	4
HESS S/S #21313	1701 WORCESTER AVE	FRAMINGHAM	GAS STATION	3
HESS S/S #21312	284 HOLLIS ST	FRAMINGHAM	GAS STATION	3
HIGHLAND INDUSTRIES INC	225 ARLINGTON ST	FRAMINGHAM	INDUSTRIAL	1
MAGUIRE'S INC	669 WORCESTER RD	FRAMINGHAM	GAS STATION	2
MOBIL #01-150	1530 CONCORD ST	FRAMINGHAM	GAS STATION	3
MOBIL #01-339	1063 WORCESTER RD	FRAMINGHAM	GAS STATION	4
NORTH FRAMINGHAM OFFICE (5654-06)	9 EDMUNDS RD	FRAMINGHAM	UTILITIES	1
ORGANIZATIONAL MAINT SHOP #7	522 CONCORD ST	FRAMINGHAM	FEDERAL / MILITARY	2
R H LONG MOTOR SALES TRUST	624 WAVERLY ST	FRAMINGHAM	VEHICLE DEALER	1
ROBERT DRAKE CO INC	222 WALNUT ST	FRAMINGHAM	CONTRACTOR	2
ROLLINS LEASING CORP	92 NEW YORK AVE	FRAMINGHAM	TRUCK/TRANSPORT	2
SHELL SERVICE STATION	846 CONCORD ST	FRAMINGHAM	GAS STATION	4
SHELL SERVICE STATION 22027880602	543-587 OLD CONNECTICUT PATH	FRAMINGHAM	GAS STATION	3
SITHE FRAMINGHAM	79 LELAND ST	FRAMINGHAM	UTILITIES	3
SUNOCO #0005-3702	554 WORCESTER RD	FRAMINGHAM	GAS STATION	4

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
TEXACO SERVICE	1060 OLD CONNECTICUT PATH	FRAMINGHAM	GAS STATION	3
TEXACO SERVICE #11-143-0058	228-230 WAVERLY ST	FRAMINGHAM	GAS STATION	5
TOMMY'S TAXI INC	167 FRANKLIN ST	FRAMINGHAM	TRUCK/TRANSPORT	1
TOSCO #2634695	730 COCHITUATE RD	FRAMINGHAM	GAS STATION	3
TOSCO #2634809	876 EDGELL RD	FRAMINGHAM	GAS STATION	4
TOSTI'S SERVICE STATION	47 WAVERLY ST	FRAMINGHAM	GAS STATION	3
US PETROLEUM	206 UNION AVE	FRAMINGHAM	GAS STATION	2
US POSTAL SERVICE VMF	330 COCHITUATE RD	FRAMINGHAM	FEDERAL / NON-MILITARY	2
HILLSIDE GARAGE	36 AYER RD	HARVARD	GAS STATION	2
HILLSIDE GARAGE	36 AYER RD	HARVARD	MUNICIPAL	1
CUMBERLAND FARMS #2189	91-93 MAIN ST	HOPKINTON	GAS STATION	4
HOPCO LNG CORP	WILSON RD	HOPKINTON	OTHER	1
HOPKINTON CITGO	1 GROVE ST	HOPKINTON	GAS STATION	3
HOPKINTON POLICE DEPT	74 MAIN ST	HOPKINTON	MUNICIPAL	1
KENNEY'S SERVICE STATION INC	91 GROVE ST	HOPKINTON	GAS STATION	3
MOBIL R/S# 11053 01-323	92 W MAIN ST	HOPKINTON	GAS STATION	4

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
PYNE SAND & STONE CO	66 FRUIT ST	HOPKINTON	TRUCK/TRANSPORT	1
TERRY OIL CO INC	MERSERVE ST, BLOCK 26	HOPKINTON	PETR. DISTR	3
CASACELI TRUCKING INC	5 COOLIDGE ST	HUDSON	OTHER	1
CONTINENTAL CITGO	706 MAIN ST	HUDSON	GAS STATION	3
CUMBERLAND FARMS #2049	200 WASHINGTON ST	HUDSON	GAS STATION	3
CUMBERLAND FARMS #2113	87 CENTRAL ST	HUDSON	GAS STATION	3
DEPT OF PUBLIC WORKS YARD	1 MUNICIPAL DR	HUDSON	OTHER	1
HUDSON HIGH SCHOOL	BRIGHAM ST	HUDSON	OTHER	1
I & G CORPORATION	457 MAIN ST	HUDSON	GAS STATION	3
O'CONNELL CONVENIENCE PLUS #26	348-350 MAIN ST	HUDSON	GAS STATION	3
PARENTE SERVICE CENTER	28 WASHINGTON ST	HUDSON	GAS STATION	2
S & F CONCRETE CONTRACTORS INC	166 CENTRAL ST	HUDSON	CONTRACTOR	2
SHELL SERVICE STATION #137769	181 MAIN ST	HUDSON	GAS STATION	3
SUNOCO #0021-3116	422 MAIN ST	HUDSON	GAS STATION	3
TUCKS SERVICE CENTER INC	BROAD ST & WASHINGTON ST	HUDSON	GAS STATION	4
CITGO STATION	170 S GREAT RD	LINCOLN	GAS STATION	4

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
R D MCCART INC	110 CONCORD RD	LINCOLN	GAS STATION/PETR. DISTR	8
AT&T	451 NEWTOWN RD	LITTLETON	COMMUNICATION EMERG GENERATOR	4
WELCH AUTOMOTIVE	277 GREAT RD	LITTLETON	GAS STATION	3
495 TRUCK SERVICE INC	400 SOUTH ST	MARLBOROUGH	CONTRACTOR	1
AGORITSAS GULF	BOLTON ST	MARLBOROUGH	GAS STATION	4
AIR PRODUCTS & CHEMICALS	102 HAYES MEMORIAL DR	MARLBOROUGH	INDUSTRIAL	1
BOLTON ST ARCO SERVICE CENTE	121 BOLTON ST	MARLBOROUGH	GAS STATION	4
C & N GAS & OIL INC	175 LAKESIDE AVE	MARLBOROUGH	GAS STATION	3
C & N GAS & OIL INC (CIRCLE M GAS)	424 LINCOLN ST	MARLBOROUGH	GAS STATION	3
CAPPELLO TRUCKING INC	416 SOUTH ST	MARLBOROUGH	TRUCK/TRANSPORT	1
CITY OF MARLBORO DPW	135 NEIL ST	MARLBOROUGH	MUNICIPAL	1
DON'S FLYING SERVICE INC	685 FARM RD	MARLBOROUGH	AIRPORT	1
HESS 21323	770 BOSTON POST RD EAST	MARLBOROUGH	GAS STATION	3
KING BRAKES INC	146 MAPLE ST	MARLBOROUGH	GAS STATION	4
MAPLE STREET SUNOCO	223 MAPLE ST	MARLBOROUGH	GAS STATION	3
MARLBORO HOSPITAL	57 UNION ST	MARLBOROUGH	OTHER	2

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
MARLBORO SUNOCO	50 MAIN ST	MARLBOROUGH	GAS STATION	3
MARLBOROUGH COUNTRY CLUB	200 CONCORD RD	MARLBOROUGH	COUNTRY CLUB/GOLF COURSE	1
MARLBOROUGH FIRE DEPARTMENT	215 MAPLE ST	MARLBOROUGH	MUNICIPAL	1
MOBIL #01-POA	270 W MAIN ST	MARLBOROUGH	GAS STATION	5
MOBIL SERVICE STATION #01-794	529 BOSTON POST RD EAST	MARLBOROUGH	GAS STATION	5
RAYTHEON CO EQUIPMENT DIVISION	1001 BOSTON POST RD	MARLBOROUGH	INDUSTRIAL	1
SHELL SERVICE STATION	413 LAKESIDE AVE	MARLBOROUGH	GAS STATION	3
SHELL SERVICE STATION	342 BOSTON POST RD	MARLBOROUGH	GAS STATION	3
SHELL SERVICE STATION	431 LINCOLN ST	MARLBOROUGH	GAS STATION	3
SOUTH STREET AUTOMOTIVE	412 SOUTH ST	MARLBOROUGH	GAS STATION	1
VERIZON MASSACHUSETTS 875302	14 JOHN ST	MARLBOROUGH	UTILITIES	1
AVIS RENT-A-CAR SYSTEM INC	25 GLENDALE ST	MAYNARD	CAR RENTAL	1
BELL ATLANTIC (8754-06)	8 WALNUT ST	MAYNARD	UTILITIES	1
CUMBERLAND FARMS #2059	54 ACTON ST	MAYNARD	GAS STATION	3
DIGITAL EQUIPMENT CORP	111 POWDERMILL RD	MAYNARD	INDUSTRIAL	1
GETTY STATION #30324	1 POWDERMILL RD	MAYNARD	GAS STATION	2

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
HALAS SERVICE STATION	170 MAIN ST	MAYNARD	GAS STATION	4
MOBIL OIL S/S #01-POC	260 MAIN ST	MAYNARD	GAS STATION	4
WINTER ST	38 WINTER ST	MAYNARD	MUNICIPAL	1
HESS 21325	194 W CENTRAL ST	NATICK	GAS STATION	1
INTERSTATE BRANDS CORPORATION	330 SPEEN ST	NATICK	TRUCK/TRANSPORT	1
MIDTOWNE MOBIL	78 N MAIN ST	NATICK	GAS STATION	3
NATICK SATURN INC	1000 WORCESTER RD	NATICK	VEHICLE DEALER	1
SUNOCO # 0402-7363	924 WORCESTER ST	NATICK	GAS STATION	4
SUNOCO SERVICE STATION #0013-1086	20 N MAIN ST	NATICK	GAS STATION	3
US ARMY RD&E CENTER	KANSAS ST	NATICK	FEDERAL / MILITARY	10
A & T SUNOCO	7 BELMONT ST	NORTHBOROUGH	GAS STATION	2
ALGONQUIN REG HIGH SCHOOL	79 BARTLETT ST	NORTHBOROUGH	OTHER	1
BERBERIAN FARMS	68 OTIS ST	NORTHBOROUGH	FARM	1
BIGELOW NURSERIES INC	455 W MAIN ST	NORTHBOROUGH	FARM	1
GETTY STATION #30669	48 W MAIN ST	NORTHBOROUGH	GAS STATION	3
MOBIL #01-F1F	36 W MAIN ST	NORTHBOROUGH	GAS STATION	4

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
NORTHBORO CITGO	35 W MAIN ST	NORTHBOROUGH	GAS STATION	2
NORTHBORO TEXACO	ROUTE 9 & LAWRENCE ST	NORTHBOROUGH	GAS STATION	3
PEIRCE OIL & GAS INC	61-63 W MAIN ST	NORTHBOROUGH	GAS STATION	3
ZECCO INC	345 W MAIN ST	NORTHBOROUGH	CONTRACTOR/TRUCK/TRANS	2
CON-WAY CENTRAL EXPRESS	625 HARTFORD TURNPIKE	SHREWSBURY	TRUCK/TRANSPORT	1
MUNICIPAL HIGHWAY GARAGE	SOUTH ST	SHREWSBURY	OTHER	1
MUNICIPAL SEWER & WATER GARAGE	207 SOUTH ST	SHREWSBURY	MUNICIPAL	2
SAXTON CORP	697 HARTFORD TURNPIKE	SHREWSBURY	OTHER	1
BOSTON RD REALTY	179 BOSTON RD	SOUTHBOROUGH	TRUCK/TRANSPORT	1
COMMONWEALTH GAS CO	157 CORDAVILLE RD	SOUTHBOROUGH	UTILITIES	2
MDC SOUTHBORO MAINTENANCE FACILIT	260 BOSTON RD	SOUTHBOROUGH	STATE	1
MOBIL S/S #01-PVC	76 WORCESTER RD	SOUTHBOROUGH	GAS STATION	4
NEARY ELEMENTARY SCHOOL	53 PARKERVILLE RD	SOUTHBOROUGH	PUBLIC SCHOOL	1
OVERNITE TRANSPORATION CO	185 BOSTON RD	SOUTHBOROUGH	TRUCK/TRANSPORT	1
SHAUGHNESSY CRANE SERVICE	251 BOSTON RD	SOUTHBOROUGH	TRUCK/TRANSPORT	1
SOUTHBORO GETTY	264 CORDAVILLE RD	SOUTHBOROUGH	GAS STATION	1

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
SOUTHBORO STATE POLICE BARRACKS	115 WOODLAND RD	SOUTHBOROUGH	STATE	2
SOUTHBORO TMF	266 BOSTON RD	SOUTHBOROUGH	STATE	2
ST MARK'S SCHOOL OF SOUTHBORO	25 MARLBORO RD	SOUTHBOROUGH	OTHER	1
TOSCO #2634723	365 TURNPIKE RD	SOUTHBOROUGH	GAS STATION	5
DEPT OF FIRE SERVICES	STATE RD	STOW	STATE	4
EXXONMOBIL OIL #01-JEJ	124 GREAT RD	STOW	GAS STATION	4
STOW TEXACO	368 GREAT RD	STOW	GAS STATION	5
BELL ATLANTIC	351 BOSTON POST RD	SUDBURY	UTILITIES	1
CHARLES PRECOURT & SON INC	46 UNION AVE	SUDBURY	INDUSTRIAL	1
CUMBERLAND GULF #201325	470 BOSTON POST RD	SUDBURY	GAS STATION	3
MOBIL #01-474	432 BOSTON POST RD	SUDBURY	GAS STATION	4
FOREIGN PERFORMANCE LTD	100 BOSTON POST RD	SUDBURY	GAS STATION	2
INTERSTATE GAS & OIL	239 NOBSCOT RD	SUDBURY	PETR. DISTR	3
SUDBURY AUTOMOTIVE INC	209 BOSTON POST RD	SUDBURY	GAS STATION	4
TOWN OF SUDBURY DPW GARAGE	275 OLD LANCASTER RD	SUDBURY	MUNICIPAL	2
COOKS AUTOMOTIVE OF WAYLAND	356 BOSTON POST RD	WAYLAND	GAS STATION	4

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
CUMBERLAND FARMS GULF #200604	130 MAIN ST	WAYLAND	GAS STATION	3
DAVID R STARMER	338 BOSTON POST RD	WAYLAND	GAS STATION	3
MOBIL	315 COMMONWEALTH AVE	WAYLAND	GAS STATION	6
SCHOOL STREET & COMMONWEALTH ROAD	322 COMMONWEALTH RD	WAYLAND	GAS STATION	2
SHEPARD'S MOBIL	268 BOSTON POST RD	WAYLAND	GAS STATION	4
SUNOCO #0005-3579	19 MAIN ST	WAYLAND	GAS STATION	3
TOSCO #2634702	28 BOSTON POST RD	WAYLAND	GAS STATION	4
ASTRA PHARMACEUTICALS	50 OTIS ST	WESTBOROUGH	INDUSTRIAL	1
BEAUMONT NURSING HOME	1 LYMAN ST	WESTBOROUGH	OTHER	2
CUMBERLAND FARMS PLANT V0555	165 FLANDERS RD	WESTBOROUGH	GAS STATION	1
MOBIL #06-E5F	130 TURNPIKE RD	WESTBOROUGH	GAS STATION	4
GETTY STATION #30683	11 MILK ST	WESTBOROUGH	GAS STATION	2
NATIONAL GRID USA SERVICE COMPANY	25 RESEARCH DR	WESTBOROUGH	INDUSTRIAL/TRUCK/TRANS	2
NEW ENGLAND POWER SERVICE CO	25 RESEARCH DR	WESTBOROUGH	UTILITIES	1
SHELL SERVICE STATION	27 E MAIN ST	WESTBOROUGH	GAS STATION	3
WESTBORO ICF	201 MILK ST	WESTBOROUGH	OTHER	1

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	QUANTITY
WESTBORO SUNOCO SERV STATION	49 MILK ST	WESTBOROUGH	GAS STATION	4
WESTBORO TEXACO	240 TURNPIKE RD	WESTBOROUGH	GAS STATION	3
WESTBOROUGH STATE HOSPITAL	LYMAN ST	WESTBOROUGH	OTHER	8
WESTBOROUGH WASTE WATER TREAT FACILITY	238 TURNPIKE RD	WESTBOROUGH	UTILITIES	1

FOR MORE INFORMATION ON UNDERGROUND STORAGE TANKS, VISIT THE MASSACHUSETTS DEPARTMENT OF FIRE SERVICES WEB SITE:
[HTTP://WWW.STATE.MA.US/DFS/UST/USTHOME.HTM](http://www.state.ma.us/dfs/ust/usthome.htm)

NOTE: THIS APPENDIX INCLUDES ONLY THOSE FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA(S) THAT MEET STATE REPORTING REQUIREMENTS AND REPORT TO THE APPROPRIATE AGENCIES. ADDITIONAL FACILITIES LOCATED WITHIN THE WATER SUPPLY PROTECTION AREA(S) SHOULD BE CONSIDERED IN LOCAL DRINKING WATER SOURCE PROTECTION PLANNING.

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APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Billerica Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
2-0000493	2 Powdermill Rd	Acton	Oil
2-0012283	263 Main St	Acton	Hazardous Material
2-0013400	289 Main St	Acton	Oil
2-0000848	341 Great Rd	Acton	Oil
2-0000010	50 Independence Rd	Acton	Oil and Hazardous Material
2-0012047	61 Powdermill Rd	Acton	Oil
2-0012850	68 Central St	Acton	Oil
2-0012713	816 Main St	Acton	Oil

RTN	Release Site Address	Town	Contaminant Type
2-0010612	930 Main St	Acton	Oil and Hazardous Material
2-0013519	Massachusetts Ave	Acton	Oil and Hazardous Material
3-0001365	11 Cordaville Rd	Ashland	--
3-0000215	11 Mulhall Dr	Ashland	--
3-0001812	126 Pond St	Ashland	--
3-0020621	196 Pond St	Ashland	Oil
3-0004669	2 Megunko Rd	Ashland	--
3-0018035	205 Main St	Ashland	Oil
3-0003617	230 Eliot St	Ashland	Oil
3-0012610	280-330 Pleasant St	Ashland	Hazardous Material
3-0010908	32 Nickerson Rd	Ashland	Oil and Hazardous Material
3-0000216	Megunko Rd	Ashland	Hazardous Material
3-0015667	Megunko Rd	Ashland	Hazardous Material
3-0002459	Pond St Kings Plz	Ashland	--
2-0013494	158 Lyman St	Berlin	Oil
2-0011719	63 Walnut St	Berlin	Oil
2-0000572	Central St Rte 62 And I 495	Berlin	Oil
3-0012013	269 Treble Cove Rd	Billerica	Oil
3-0017905	313 Boston Rd	Billerica	Oil
3-0004080	Nashua Rd Overlook Rd	Billerica	Hazardous Material
3-0017475	Rte 3n	Billerica	Oil
2-0013678	58 West Berlin Rd	Bolton	Oil
3-0002578	18 Lowell St	Carlisle	--
3-0003844	1089 Concord Tpke	Concord	--
3-0018998	133 Old Rd To 9 Acre Cor	Concord	Oil
3-0001189	147 Lowell Rd	Concord	Oil
3-0004275	22 Concord Tpke	Concord	Oil
3-0003116	686 Elm St	Concord	--

RTN	Release Site Address	Town	Contaminant Type
3-0014784	7-9 Church St	Concord	Hazardous Material
3-0000166	105 Hollis St	Framingham	Oil
3-0017563	112 Waverly St	Framingham	Oil and Hazardous Material
3-0012932	1181-1183 Worcester Rd	Framingham	Oil and Hazardous Material
3-0000568	147-149 Cochituate Rd	Framingham	--
3-0004026	1660 Worcester Rd	Framingham	--
3-0012671	1701 Worcester Rd	Framingham	Hazardous Material
3-0014269	2 Central St	Framingham	Oil
3-0006016	200 State St	Framingham	--
3-0017678	21 Beaver Court Ext	Framingham	--
3-0013144	22-24 Waverly St	Framingham	Oil and Hazardous Material
3-0000691	25 Loring Dr	Framingham	--
3-0010090	3 School St	Framingham	Oil
3-0000589	350 Irving St	Framingham	Oil
3-0006011	36 Berkshire Rd	Framingham	Oil
3-0001047	387-699 Waverly St	Framingham	--
3-0004266	39 Taylor St	Framingham	--
3-0001405	448 Water St	Framingham	--
3-0016656	47 Blandin Ave	Framingham	Oil and Hazardous Material
3-0012985	472 Concord St	Framingham	Oil
3-0002159	480 Franklin St	Framingham	--
3-0004674	506 Concord St	Framingham	Oil
3-0020460	535 Union Ave	Framingham	Oil and Hazardous Material
3-0010155	554 Worcester Rd	Framingham	Oil
3-0000891	59 Beaver St	Framingham	--
3-0004084	600 Concord St	Framingham	--
3-0004356	63 Western Ave	Framingham	Oil
3-0003939	63 Western Ave	Framingham	Hazardous Material

RTN	Release Site Address	Town	Contaminant Type
3-0000317	63 Western Ave	Framingham	--
3-0003940	63 Western Ave	Framingham	Oil
3-0012507	655 Waverly St	Framingham	Oil
3-0013141	697-705 Waverly St	Framingham	Oil
3-0019933	73 Mt Wayte Ave	Framingham	Oil and Hazardous Material
3-0020118	73 Mt Wayte Ave	Framingham	Oil and Hazardous Material
3-0002361	740 Worcester Rd	Framingham	--
3-0019550	770 Water St	Framingham	Hazardous Material
3-0004045	825 Waverly St	Framingham	Oil
3-0002100	846 Concord St	Framingham	--
3-0002622	Arthur St	Framingham	Oil
3-0003041	Bishop Dr	Framingham	Oil
3-0004755	Concord St Lincoln St	Framingham	Oil
3-0017657	Henry St	Framingham	Oil
3-0019689	Irving St	Framingham	Hazardous Material
3-0016580	Leland St	Framingham	Oil
3-0003215	Ma Tpke Mm 1140	Framingham	--
3-0000629	Meadow Dr	Framingham	Hazardous Material
3-0010017	Rte 30 Speen St	Framingham	Oil
2-0013397	60 Main St	Hopkinton	Hazardous Material
2-0013803	66 Fruit St	Hopkinton	Oil and Hazardous Material
2-0011806	85 Hayden Rowe	Hopkinton	Oil and Hazardous Material
2-0012993	91 Grove St	Hopkinton	Hazardous Material
2-0000807	92 West Main St	Hopkinton	Oil
2-0013794	Hayden Rowe St	Hopkinton	Oil
2-0010964	Mt Auburn St	Hopkinton	Hazardous Material
2-0010526	12 Wheeler Rd	Hudson	Hazardous Material
2-0013741	262 Sawyer Ln	Hudson	Oil

RTN	Release Site Address	Town	Contaminant Type
2-0000855	29 Apsley St	Hudson	Oil
2-0000069	32 Washington St	Hudson	Oil
2-0013290	401 River Rd	Hudson	Hazardous Material
2-0000544	Bigelow St	Hudson	Oil
3-0013974	110 Concord Rd	Lincoln	Oil
3-0001796	170 South Great Rd	Lincoln	--
2-0000086	134 West Main St	Marlborough	--
2-0013738	135 Neil St	Marlborough	Oil and Hazardous Material
2-0010699	146 Maple St	Marlborough	Oil
2-0000832	167 Northboro Rd	Marlborough	Oil
2-0000634	215 Maple St	Marlborough	Oil and Hazardous Material
2-0013156	222 East Main St	Marlborough	Hazardous Material
2-0000093	247 Maple St	Marlborough	--
2-0000763	279 Maple St	Marlborough	Oil
2-0000923	301 Maple St	Marlborough	Oil
2-0000774	329-331 Lincoln St	Marlborough	Oil
2-0010629	342 Boston Post Rd	Marlborough	Hazardous Material
2-0011001	342 Boston Post Rd	Marlborough	Oil
2-0000727	399 Berlin Rd	Marlborough	--
2-0011486	413 Lakeside Ave	Marlborough	Oil
2-0013126	428 Maple St	Marlborough	Oil and Hazardous Material
2-0011998	84 Chestnut St	Marlborough	Oil and Hazardous Material
2-0013965	Glen St And Ripley St	Marlborough	--
2-0013286	West Main St	Marlborough	Hazardous Material
2-0000709	151 Main St	Maynard	--
2-0012751	38 Winter St	Maynard	Oil
3-0006028	17 Greenleaf Rd	Natick	Oil
3-0013912	196 West Central St	Natick	Oil

RTN	Release Site Address	Town	Contaminant Type
3-0003672	229 North Main St	Natick	Hazardous Material
3-0003858	307 West Central St	Natick	Oil
3-0014932	327 West Central St	Natick	Hazardous Material
3-0011696	45 Kendall Ln	Natick	Hazardous Material
3-0004310	54 Highland St	Natick	--
3-0019387	843 Worcester Turnpike Route 9	Natick	Oil
3-0015672	891 Worcester Rd	Natick	Oil and Hazardous Material
3-0000575	Commonwealth Rd	Natick	--
3-0002473	Kansas St	Natick	--
3-0013294	Kansas St	Natick	Oil
3-0002906	Off Massachusetts Tpke	Natick	--
3-0019723	Rte 30 @ Speen St	Natick	Oil
2-0000393	200 Bartlett St	Northborough	Oil
2-0000674	23 Belmont St	Northborough	--
2-0013507	45 West Main St	Northborough	Oil
2-0013537	Rte 20	Northborough	Hazardous Material
2-0010518	Rte 290 E	Northborough	Oil
2-0013150	Southwest Cutoff	Northborough	Hazardous Material
2-0013457	Southwest Cutoff	Northborough	Oil and Hazardous Material
3-0021825	43 Kendall Ave	Sherborn	Oil
2-0011682	800 Hartford Tpke	Shrewsbury	Oil
2-0001050	866 Hartford Tpke	Shrewsbury	Oil
2-0000125	155 Boston Rd	Southborough	Oil
2-0012536	78 Turnpike Rd	Southborough	Oil
2-0010254	Woodland St	Southborough	Oil
2-0012504	626 Great Rd	Stow	Oil
2-0010279	77 White Pond Rd	Stow	Oil
3-0000435	100 North Rd	Sudbury	Oil

RTN	Release Site Address	Town	Contaminant Type
3-0019132	142 North Rd	Sudbury	Hazardous Material
3-0000074	33 Union Rd	Sudbury	Oil and Hazardous Material
3-0010592	428 Boston Post Rd	Sudbury	Hazardous Material
3-0002423	432 Boston Post Rd	Sudbury	Oil
3-0004202	470 Boston Post Rd	Sudbury	Oil
3-0015951	475 Boston Post Rd	Sudbury	Oil
3-0003325	268 Boston Post Rd	Wayland	--
3-0003171	315 Commonwealth Rd	Wayland	Oil
3-0004394	322 Commonwealth Rd	Wayland	--
3-0017974	356 Boston Post Rd	Wayland	Oil
3-0001594	41 Cochituate Rd	Wayland	--
3-0013302	430 Boston Post Rd	Wayland	Oil
3-0004220	96 Main St	Wayland	--
2-0000151	111 Milk St	Westborough	--
2-0011308	111 Milk St	Westborough	Oil
2-0013004	160 Flanders Rd	Westborough	Oil
2-0000982	22 South St	Westborough	Oil
2-0000865	240 Turnpike Rd	Westborough	Oil
2-0000426	27 Washington St	Westborough	--
2-0000220	65 Fisher St	Westborough	--
2-0013978	97 Turnpike Rd	Westborough	--
2-0000153	Fisher St	Westborough	Hazardous Material
2-0013846	Lyman St	Westborough	--
2-0013490	Lyman St	Westborough	Oil
2-0000401	Massachusetts Tpke	Westborough	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Four Mile Village

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Four Mile Village
<i>PWS Address</i>	50 Four Mile Village
<i>City/Town</i>	Boxford, Massachusetts 01921
<i>PWS ID Number</i>	3038001
<i>Local Contact</i>	Kenneth Kretsch
<i>Phone Number</i>	(978) 887-8941

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

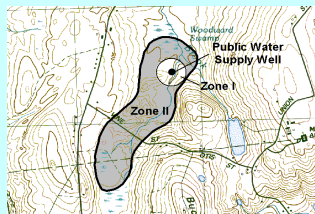
Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Attachments

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Section 1: Description of the Water System

Zone II #: 553

Susceptibility: High

Well Names	Source IDs
Well #2	3038001-02G
Well #3	3038001-03G

The Four Mile Village Wells are located in an area southeast of the middle residential building. Well #2 has a Zone I radius of 240 feet, and Well #3 has a Zone I radius of 210 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The DEP requires public water suppliers to monitor the quality of the water. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

Section 2: Land Uses in the Protection Areas

The Zone II for the Four Mile Village Wells is a mixture primarily of residential, wetlands, and forest land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Residential land uses

The overall ranking of susceptibility to contamination for the system is medium, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone I – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The Zone I for Wells 2 & 3 contain three homes, and 22 parking spaces; the Zone I for Well #2 also has two septic systems. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Zone I Recommendations:

- ✓ **Remove Non-Water Supply Activities** - To the extent possible, remove all non- water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ **Storage** - Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ **Non-Water Supply Activities** - Keep any new non-water supply activities out of the Zone I.

2. Residential Land Uses – Approximately 25% of the Zone II consists of residential areas. None of the residences have public sewers, and so all use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- ◆ **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- ◆ **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- ◆ **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- ◆ **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Work with the Town to educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

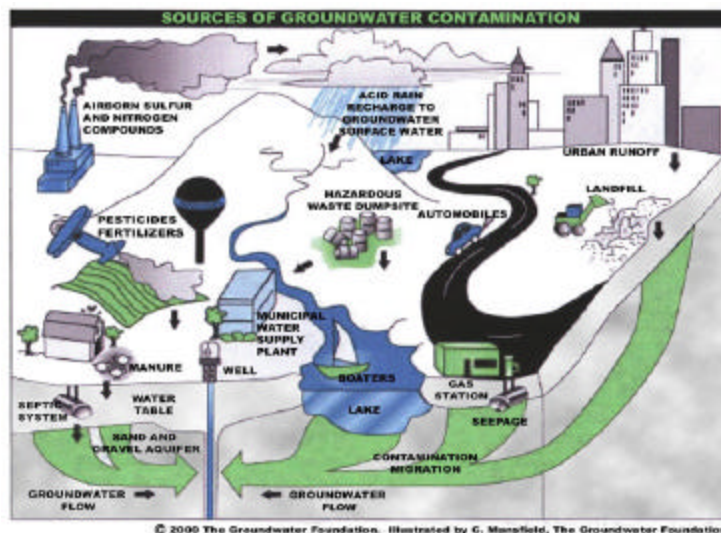
Section 3: Source Water Protection Conclusions and Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the Four Mile Village Well’s susceptibility to contamination. Four Mile Village should review and adopt the key recommendations above and the following:

Priority Recommendations:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP’s Zone I requirements.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Prohibit public access to the wells.



Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator. Post labels as appropriate on raw materials and hazardous waste.
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, refer to <http://www.state.ma.us/dep/bwp/dhm/files/sqgsum.pdf> for the Requirements for Small Quantity Generators .

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. Instead, in areas using hazardous materials, discharge drains to a tight tank or sanitary sewer.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis.
- ✓ Concrete pads should slope away from well and well casing should extend above ground.
- ✓ For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Planning:

- ✓ Work with local officials in Boxford to include the Four Mile Village's Zone II in the Town's Aquifer Protection District Bylaw and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

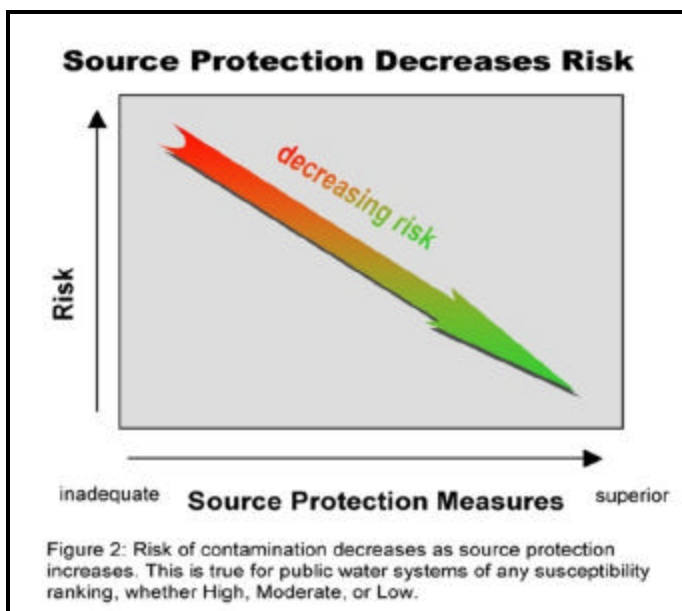
Current Land Uses and Source Protection:

As with many water supply protection areas, the system's Zone II contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Maintaining a policy of not using pesticides and fertilizers on common areas throughout the complex.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in the Key Issues above and Appendix A.



DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Potential Source of Contamination
Residential			
Fuel Oil Storage	Numerous	M	Spills, leaks, or improper handling of fuel oil
Lawn Care / Gardening	Numerous	M	Over-application or improper storage and disposal of pesticides and fertilizers
Septic Systems / Cesspools	Numerous	M	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous			
Transportation Corridors	1	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
<p>Notes: When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.</p> <p>THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>			

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Section 4: Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Fertilizer Use Factsheet
- Source Protection Sign Order Form



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Spofford Pond School

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Spofford Pond School
<i>PWS Address</i>	31 Spofford Pond Road
<i>City/Town</i>	Boxford, Massachusetts 01921
<i>PWS ID Number</i>	3038008
<i>Local Contact</i>	Stephen Clifford
<i>Phone Number</i>	(978) 750-1955

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

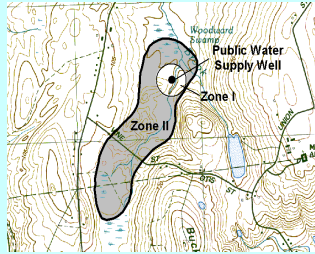
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Attachments

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Zone II #: 537

Susceptibility: High

Well Names	Source IDs
Spofford Pond School Rock Well	3038008-01G

The Spofford Pond School Rock Well is located in the courtyard in the middle of the school buildings. A very small segment of the northeast portion of the water supply protection area extends into the town of Georgetown. The well has a Zone I radius of 240 feet. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The DEP requires public water suppliers to monitor the quality of the water. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 2: Land Uses in the Protection Areas

The Zone II for the Spofford Pond School Rock Well is a mixture primarily of residential, wetlands, and forest land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Department of Public Works facility
3. Residential land uses

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone I – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The Spofford Pond School Rock Well Zone I contains the school building, bus drop, a small portion of the road, and parking areas. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Zone I Recommendations:

- ✓ **Remove Non-Water Supply Activities** - To the extent possible, remove all non- water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ **Storage** - Do not use or store pesticides or fertilizers within the Zone I.
- ✓ **Non-Water Supply Activities** - Keep any new non-water supply activities out of the Zone I.

2. Department of Public Works Facility - The potential for ground water contamination in municipal facilities is related to accidental dumps, accidental spills, and vehicle washing operations, or from wastewater treatment or left over product. Waste management and product storage processes pose the most prevalent threats to ground water, and a wide variety of potentially harmful constituents are involved in release incidents.

Department of Public Works Facility Recommendations:

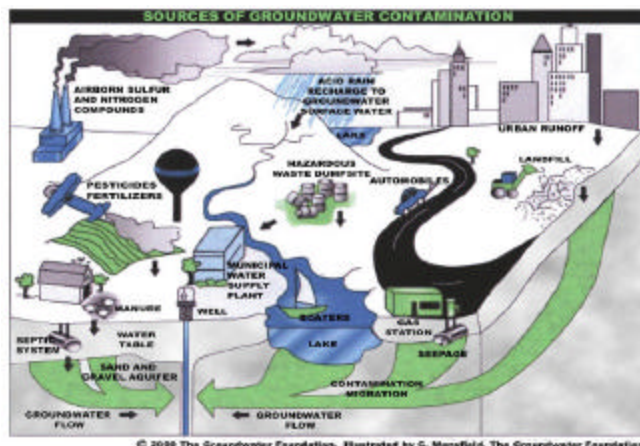
- ✓ **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/necat/muni/index.html>. Encourage the Department of Public Works to develop best management practices to ensure proper maintenance of facilities and good housekeeping practices.
- ✓ **Vehicle Washing** - Managing vehicle washing near drinking water sources is important because the wash water can percolate through soil and contaminate ground water. DEP Water Pollution Control regulations 314 CMR 5.00 prohibit the discharge of wash water into the ground.

3. Residential Land Uses – Approximately 25% of the Zone II consists of residential areas. None of the residences have public sewers, and so all use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- ◆ **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- ◆ **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- ◆ **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- ◆ **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Work with the Town to educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.



- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

Section 3: Source Water Protection Conclusions and Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the Spofford Pond School Rock Well’s susceptibility to contamination. Spofford Pond School should review and adopt the key recommendations above and the following:

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Priority Recommendations:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Prohibit public access to the well.

Training and Education:

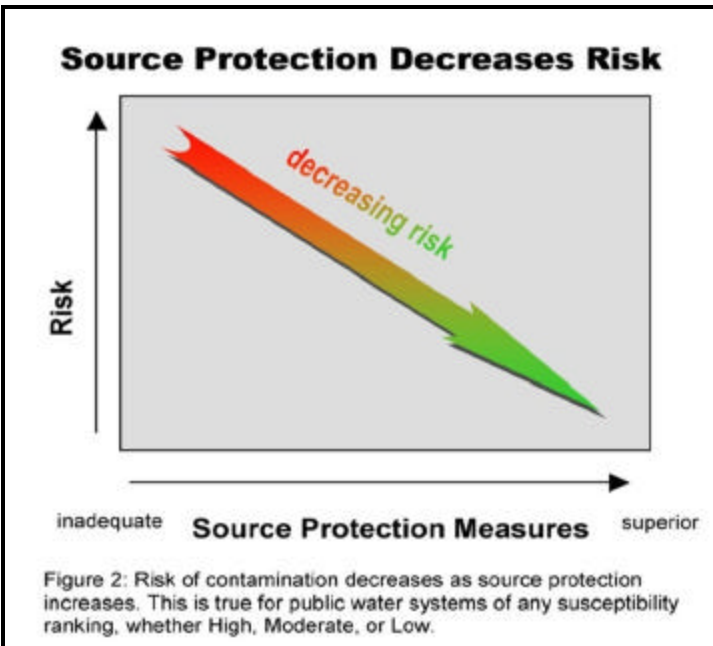
- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff. Post labels as appropriate on raw materials and hazardous waste.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Incorporate groundwater education into school curriculum (K-6 and 7-12 curricula available; contact DEP for copies).

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, refer to <http://www.state.ma.us/dep/bwp/dhm/files/sqgsum.pdf> for the Requirements for Small Quantity Generators .
- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. Instead, in areas using hazardous materials, discharge drains to a tight tank or sanitary sewer.
- ✓ Bring floor drains into compliance with DEP Regulations (refer to attachment "Industrial Floor Drain Brochure").
- ✓ Remove hazardous materials from rooms with floor drains that drain to the ground or septic systems.
- ✓ Floor drains in areas where hazardous materials or wastes might reach them need to drain to a tight tank, be sealed, or be connected to a sanitary sewer.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis.
- ✓ Concrete pads should slope away from well and well casing should extend above ground.
- ✓ For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.



Planning:

- ✓ Work with local officials in Boxford to include the Spofford Pond School's Zone II in the Town's Aquifer Protection District Bylaw and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Potential Source of Contamination
Commercial			
Bus and Truck Terminals	1	H	Spills, leaks, or improper handling of fuels and maintenance
Residential			
Fuel Oil Storage	Numerous	M	Spills, leaks, or improper handling of fuel oil
Lawn Care / Gardening	Numerous	M	Over-application or improper storage and disposal of pesticides and fertilizers
Septic Systems / Cesspools	Numerous	M	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous			
Road And Maintenance		M	Spills, leaks, or improper handling or storage of deicing

Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.
- ◆ **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

Current Land Uses and Source Protection:

As with many water supply protection areas, the system's Zone II contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Maintaining a policy of not using pesticides and fertilizers on school grounds.
- Providing secondary containment for water supply treatment chemicals.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Section 4: Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Fertilizer Use Factsheet
- Industrial Floor Drains Brochure
- Healthy Schools Fact Sheet
- Source Protection Sign Order Form

Source Water Assessment Program (SWAP) Report For Harry Lee Cole School



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
February 1, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Harry Lee Cole School
<i>PWS Address</i>	Middleton Road
<i>City/Town</i>	Boxford, Massachusetts
<i>PWS ID Number</i>	3038009
<i>Local Contact</i>	Kevin McGann
<i>Phone Number</i>	(978) 750-1955

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Cole School Well	3038009-01G	180	538	High

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? Inventory land uses within the recharge areas of all public water supply sources;

? **Assess the susceptibility of drinking water** sources to contamination from these land uses; and

? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

INTRODUCTION

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. DESCRIPTION OF THE WATER SYSTEM

The well for the Harry Lee Cole School is a public water supply currently serving a population of 550 students and staff. The well for the Harry Lee Cole School is located in a stand of trees on the southwest side of the school building. The well is 6 inches in diameter and is drilled to a depth of 755 feet. The Cole School Well has a Zone I radius of 180 feet and an Interim Wellhead Protection Area (IWPA) radius of 538 feet. The well is located in a sand and gravel aquifer that has a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map for the well location, Zone I, and IWPA. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused.

Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

5. DISCUSSION OF LAND USES IN THE PROTECTION AREAS

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate activities in Zone I;**
2. **Hazardous Materials; and**
3. **Stormwater Catchbasin.**

The overall ranking of susceptibility to contamination for the well is high, based on the presence of at least one high threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone Is** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The Harry Lee Cole School Zone I contains a portion of the school building, a utility substation transformer, the bus pick-up/drop-off area, the intersection of two moderately traveled roads, and a portion of Main Street. The public water supplier does not own and/or control all land encompassed by the Zone 1. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

2. **Hazardous Materials/Floor Drains** - Discharge from boiler room floor drains MUST go to a DEP approved tight tank or the drains must be sealed, and staff should be trained on proper disposal of hazardous materials and hazardous waste disposal practices.

Recommendations:

Compliance can be achieved by rerouting the discharges to a DEP approved tight tank or by eliminating the floor drains if they aren't needed.

3. **Stormwater Catch Basins** – Catch basins transport storm water from the roadway and adjacent properties to the ground. As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Storage, use, and improper disposal of hazardous materials	No	Yes	High	Floor drains in boiler room discharge to septic system
Parking lot, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Athletic/Agricultural Fields	No	Yes	Moderate	Fertilizer and pesticide use
Septic Systems	No	Yes	Moderate	See septic systems brochure in the appendix
Utility substation transformer	Yes	Yes	Low	See recommendations
Stormwater catch basins	No	Yes	Low	Location of discharge is unknown
Structures	Yes	Yes	-	Non-water supply structures in Zone I

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Recommendations:

- ✓ Work with the Town to have the catch basins inspected, maintained, and cleaned on a regular schedule. Additionally, routine street and parking lot sweeping reduces the amount of potential contaminants in storm runoff.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. PROTECTION RECOMMENDATIONS

Implementing protection measures and best management practices (BMPs) will reduce the Cole School Well susceptibility to contamination. Harry Lee Cole School is commended for not using lawn care products on school property. Harry Lee Cole School should review and adopt the key recommendations above and the following:

Priority Recommendations:

- ✓ Complete a wellhead protection plan.

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Prohibit public access to the well by gating roads, and posting signs.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, and check any above ground tanks for leaks, etc.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.
- ✓ Redirect road and parking lot drainage in the Zone I away from well.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Upgrade to propane or natural gas for back-up power sources.

Training and Education:

- 3 Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff.
- ✓ Post drinking water protection area signs at key visibility locations.
 - ✓ Incorporate groundwater education into school curriculum (K-6 and 7-12 curricula available; contact DEP for copies).
 - ✓ Work with your community to ensure that stormwater runoff is directed away from the well and is treated according to DEP guidance.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/brp/dws/dwspubs.html.
- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. Instead, in areas using hazardous materials, discharge drains to a tight tank.
- ✓ Bring the floor drain into compliance with DEP Regulations (refer to attachment "Industrial Floor Drain Brochure").
- ✓ Remove hazardous materials from rooms with floor drains that drain to the ground or septic systems.
- ✓ Floor drains in areas where hazardous materials or wastes might reach them need to drain to a tight tank or be sealed.

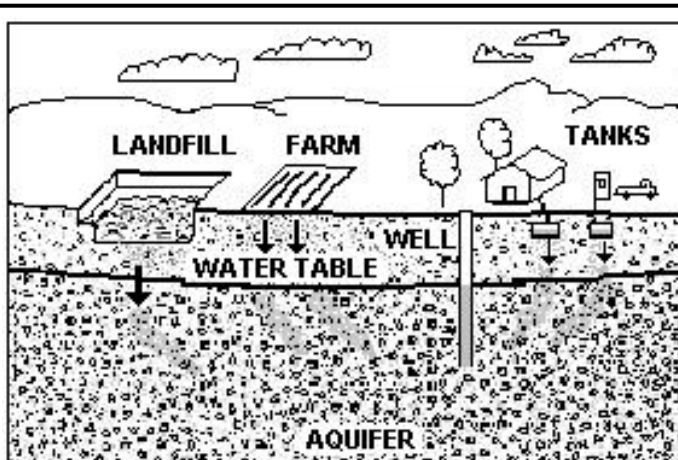


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/ including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on Harry Lee Cole School property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.
- ✓ For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.
- ✓ The school is currently not registered as a generator of hazardous waste or waste oil. Review enclosed document "A Summary of Requirements for Small Quantity Generators of Hazardous Waste" to determine your status and regulatory requirements.

Planning:

- ✓ Work with local officials in Boxford to include the Harry Lee Cole School IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Agricultural:

- ✓ Consider obtaining a conservation restriction for any agricultural land within Zone I that cannot be purchased. Another option is to negotiate a "Memorandum of Understanding" (MOU) with the farmer to refrain from using pesticides and fertilizers and eliminate manure storage within Zone I.
- ✓ Encourage farmers in the IWPA to seek assistance from the Natural Resource Conservation Service (NRCS) in addressing manure management issues.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet from last year (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. ATTACHMENTS

- Map of the Public Water Supply (PWS) Protection Area
- Recommended Source Protection Measures Factsheet

Source Water Assessment Program (SWAP) Report For Andrews Farm Water Company



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
February 9, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Andrews Farm Water Company
<i>PWS Address</i>	36 Andrews Farm Road
<i>City/Town</i>	Boxford, Massachusetts
<i>PWS ID Number</i>	3038020
<i>Local Contact</i>	William Wood – Certified Operator
<i>Phone Number</i>	978-887-1517

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	3038020-01G	306	928	Moderate

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

INTRODUCTION

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. DESCRIPTION OF THE WATER SYSTEM

The Well

The Andrews Farm Water Company is a public water supply currently serving a population of 141 residents. Well #1 is located near the tree line approximately 200 feet to the East Side (rear) of the pump station. The well is 6 inches in diameter and is drilled to a depth of 1160 feet. Well #1 has a Zone I radius of 306 feet and an Interim Wellhead Protection Area (IWPA) radius of 928 feet. The well is located in a sand and gravel aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map for the well location, Zone I and IWPA. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. DISCUSSION OF LAND USES IN THE PROTECTION AREAS

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

inappropriate Activities in Zone I

The overall ranking of susceptibility to contamination for the well is moderate, based on the presence of at least one moderate threat land use or activity in the IWPA, as seen in Table 2.

- Zone I** – Currently, the well does not meet DEP’s requirements, which only allow water supply related activities in Zone Is. Andrews Farm Water Company’s Zone I contains houses and local roads. The public water supplier does not own and/or control all land encompassed by the Zone 1. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP’s Zone I requirements.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

Implementing the following recommendations will reduce the system’s susceptibility to contamination.

3. PROTECTION RECOMMENDATIONS

Implementing protection measures and best management practices (BMPs) will reduce the Andrews Farm well’s susceptibility to contamination. Andrews Farm is commended for posting the pump house with public water supply signs, and for discouraging recreational activities in the Zone I by not mowing the area. Andrews Farm should review and adopt the key recommendations above and the following:

Priority Recommendation:

- ✓ Complete a wellhead protection plan.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from well
Lawn care/gardening	Yes	Yes	Moderate	No chemicals used around pump station; provide BMP information to homeowners.
Septic Systems	No	Yes	Moderate	See septic systems brochure in the appendix
Floor Drain	No	Yes	Moderate	Floor drain in pump station discharges outside Zone I
Storm drains	Yes	Yes	Low	Discharge outside Zone I
Structures	Yes	Yes	-	Non-water supply structures in Zone I

For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP’s website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Prohibit public access to the well by fencing and posting signs.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, check any above ground tanks for leaks, etc.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.
- ✓ Redirect road and driveway drainage in the Zone I away from well.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include groundskeepers and certified operators.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Work with your community to ensure that stormwater runoff is directed away from the well and is treated according to DEP guidance.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Develop educational program to teach residents about the hazards associated with lawn care chemicals; implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides.
- ✓ Develop and implement educational outreach to residents which includes providing factsheets with information on proper septic system maintenance and practices.
- ✓ Encourage residents to participate in Household Hazardous Waste Collection days or centers.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at <http://www.dep.state.ma.us/dep/bwp/dhm/dhmpubs.htm>
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides.
- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. Instead, in areas using hazardous materials, discharge drains to a tight tank or sanitary sewer.
- ✓ Remove hazardous materials from rooms with floor drains that drain to the ground or septic systems.

- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.
- ✓ For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

Planning:

- ✓ Work with local officials in Boxford in creating a Groundwater Protection District Bylaw to meet current DEP regulations, and include the Andrews Farm Water Company's IWPA to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.

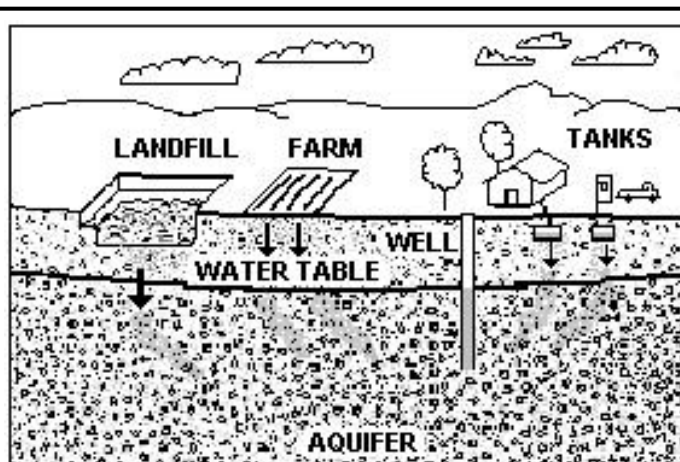


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/ including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet from last year (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. ATTACHMENTS

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- A Reference Guide for Homeowners: Your Septic System Brochure
- Protecting Groundwater from Pesticides
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form
- Developing a Local Wellhead Protection Plan
- Wellhead Protection Tips For Small Water Systems
- Healthy Lawn/Healthy Environment
- Protecting Water Sources from Fertilizer



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Tri Town Water Board

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Tri Town Water Board
<i>PWS Address</i>	2 J.F.K. Memorial Drive/P.O. Box 903
<i>City/Town</i>	Braintree, Massachusetts 02184
<i>PWS ID Number</i>	3040002
<i>Local Contact</i>	Paul Wohler
<i>Phone Number</i>	(781) 794-8250

Introduction

We are all concerned about the quality of the water we drink. Drinking water may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures.

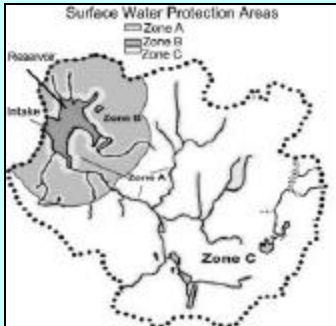
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Section 1: Description of the Water System

<i>Source Name</i>	<i>Source ID</i>	<i>Susceptibility</i>
Great Pond	3040002-01S	High
	3040000-01S	High
	3244001-01S	High
Richardi Reservoir	3040000-02S	High
Farm River	3040000-03S	High
Upper Reservoir—Great Pond	3040000-04S	High

The Tri Town Water Board (Board) maintains and operates four public water supply sources that serve the towns of Braintree, Holbrook, and Randolph. The Board's sources are located within the Weymouth/Weir River basin. The watershed for Great Pond extends from Braintree and Randolph south into the towns of Avon and Stoughton; Richardi Reservoir's watershed includes areas of Braintree and Randolph; and, the Farm River watershed extends from Braintree and Randolph into Quincy, Milton and Canton.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Glossary Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 2: Land Uses in the Protection Areas

The protection areas for the Board's water supply sources are a mixture of forest, residential, commercial, and industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues include:

1. Activities in Zone A
2. Transportation Corridors
3. Hazardous Materials Storage and Use
4. Residential Land Uses
5. Golf Course
6. Presence of Oil or Hazardous Material Contamination Sites
7. Aquatic Wildlife
8. Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Zone A Land Uses - The Zone A is the land area within 400 feet of a reservoir and 200 feet of its tributaries. The land uses and activities within the Zone A areas for the Board include: transportation corridors, commercial and industrial facilities, recreational activities, and aquatic wildlife. Public water systems are responsible for enforcing the prohibition of certain new or expanded land uses within the Zone A, as detailed in 310 CMR 22.20(b).

Zone A Recommendations:

- ✓ Actively monitor new or expanded land uses within the Zone A according to your watershed protocol submitted to DEP.
- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Control stormwater and erosion within the Zone A.
- ✓ Control aquatic wildlife within the Zone A as necessary.
- ✓ Work with local emergency response teams to practice containment of spills within the Zone A.
- ✓ Conduct regular inspections of the Zone A for illegal dumping and spills.
- ✓ Install water supply protection area signs as needed around the Zone A.

2. Transportation Corridors - Transportation corridors and other paved and unpaved local roads cross through the water supply protection areas. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins.

Transportation Corridor Recommendations:

- ✓ Continue to work cooperatively with the Massachusetts Highway Department on a hazardous materials management plan.
- ✓ Work with the Towns and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Continue to work with local emergency response teams to ensure that any spills within the watersheds can be effectively contained.

- ✓ Review storm drainage maps with emergency response teams. Work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

3. Hazardous Materials Storage and Use – Approximately eleven (11) percent of the combined area within the watersheds is commercial or industrial land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

4. Residential Land Uses – Approximately 40% of the watersheds consist of residential areas. Most of the areas have public sewers, with the remainder using private septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

- **Septic Systems** - Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.

- ✓ Promote BMPs for stormwater management and pollution controls.

5. Golf Course Activities – Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Courses Recommendations:

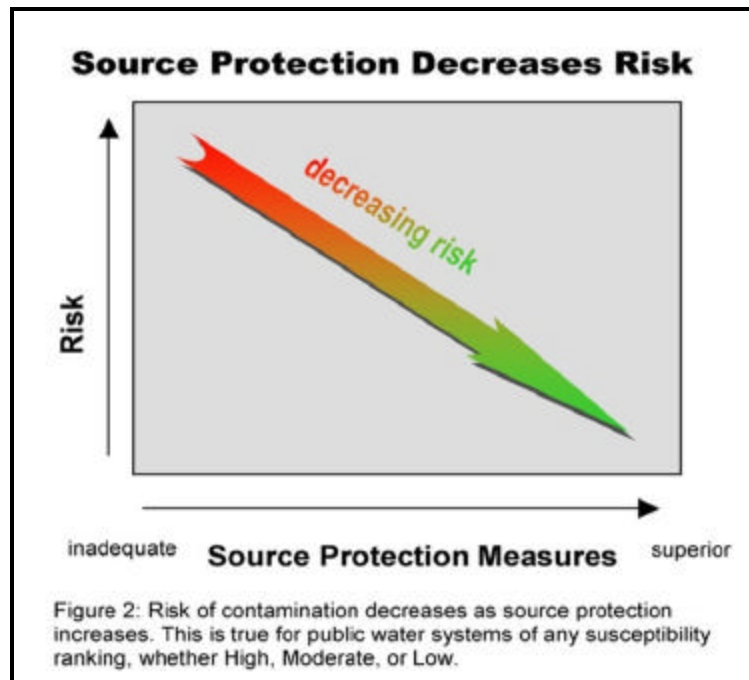
- ✓ Encourage the golf course grounds manager to incorporate an **Integrated Pest Management (IPM)** approach into their grounds maintenance program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.

**When you wash your car in the driveway,
Remember
you're not just washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Water Street Boston, MA 02108



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watersheds

Activities	Quantity	Threat	Source #	Potential Source of Contamination
Agricultural				
Livestock Operations	2	H	01S, 03S, 04S	Manure (microbial contaminants): improper handling
Manure Storage or Spreading	3	H	01S, 03S, 04S	Manure (microbial contaminants): improper handling
Nurseries	1	M	03S	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling, or over-application
Commercial				
Body Shops	6	H	01S, 03S, 04S	Improper management of vehicle paints, solvents, and primer products
Car/Truck/Bus Washes	1	L	01S, 04S	Vehicle wash water, soaps, oils, greases, metals, and salts: improper management
Gas Stations	4	H	01S, 03S, 04S	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	12	H	01S, 02S, 03S, 04S	Automotive fluids, vehicle paints and solvents: spills, leaks, or improper handling
Bus and Truck Terminals	6	H	01S, 03S, 04S	Fuels and maintenance chemicals: spills, leaks, or improper handling
Cemeteries	3	M	01S, 03S, 04S	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Golf Courses	2	M	02S, 03S	Fertilizers or pesticides: over-application or improper handling
Medical Facilities	1	M	02S	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes
Nursing Homes	3	L	01S, 04S	Microbial contaminants
Paint Shops	1	H	03S	Spills, leaks, or improper handling or storage of paints, solvents, other chemicals
Photo Processors	2	H	01S, 03S, 04S	Spills, leaks, or improper handling or storage of photographic chemicals
Printer and Blueprint Shops	4	M	01S, 03S, 04S	Printing inks and chemicals: spills, leaks, or improper handling or storage

Table 2: Land Use in the Watersheds

Activities	Quantity	Threat	Source #	Potential Source of Contamination
Commercial (cont'd)				
Repair Shops (Engine, Appliances)	1	M	03S	Engine fluids, lubricants, and solvents: spills, leaks, or improper handling or storage
Research Laboratories	3	M	01S, 03S, 04S	Laboratory chemicals and wastes: spills, leaks, or improper handling or storage
Sand and Gravel Mining/Washing	1	M	03S	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial				
Asphalt, Coal Tar, and Concrete Plants	1	M	01S, 04S	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Food Processors	3	L	01S, 03S, 04S	Spills, leaks, or improper handling or storage of cleaners and other chemicals; microbial contaminants
Hazardous Materials Storage	4	H	01S, 03S, 04S	Spills, leaks, or improper handling or storage of hazardous materials
Industry/Industrial Parks	6	H	01S, 03S, 04S	Industrial chemicals and metals: spills, leaks, or improper handling or storage
Machine/Metalworking Shops	1	H	03S	Spills, leaks, or improper handling of solvents; metal tailings
Pharmaceutical Manufacturers	1	H	01S, 04S	Spills, leaks, or improper handling and or storage of chemicals
Plastic Manufacturers	1	H	03S	Spills, leaks, or improper handling or storage of solvents, resins and process wastes
Residential				
Fuel Oil Storage (at residences)	100+	M	All	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	100+	M	All	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	Several	M	All	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous				
Aboveground Storage Tanks	6	M	01S, 03S, 04S	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	100+	L	All	Microbial contaminants
Clandestine Dumping	Frequent	H	01S, 03S, 04S	Debris containing hazardous materials or wastes
Composting Facilities	2	L	01S, 03S, 04S	Storage and improper handling of organic material, animal waste, and runoff

Table 2: Land Use in the Watersheds

Activities	Quantity	Threat	Source #	Potential Source of Contamination
Miscellaneous				
Large Quantity Hazardous Waste Generators	6	H	01S, 03S, 04S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Military Facilities (Past And Present) Type: <u>former NIKE site</u>	1	H	03S	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump sites
NPDES Locations	1	L	01S, 04S	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	7	--	01S, 03S, 04S	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	6	M	01S, 03S, 04S	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Small Quantity Hazardous Waste Generators	28	M	01S, 04S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	100+/ Few	L	All	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	4	H	All	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling
Underground Storage Tanks		M	01S, 03S, 04S	Stored materials: spills, leaks, or improper handling
Very Small Quantity Hazardous Waste Generators	40	L	01S, 03S, 04S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Water Treatment Sludge Lagoons	4	M	01S, 04S	Improper management of sludge and wastewater
Notes:				
<ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. 				
<p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

- ✓ Promote **Best Management Practices** (BMPs) for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Work with golf courses to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.

6. Presence of Oil or Hazardous Material Contamination Sites – The watersheds contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 3-0016811, 3-0004029, 3-0003431, 3-0001524, 3-0021031, 3-0019730, and 4-0010012. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

7. Aquatic Wildlife - Birds, particularly gulls, are attracted to large open bodies of water. Birds may increase coliform levels through the release of fecal matter into the water and may carry other bacteria and viruses. Beaver and muskrat may introduce the pathogens Giardia and Cryptosporidium into water through fecal matter. Because of their constant contact with the water, these aquatic mammals represent a

potential threat to drinking water reservoirs. Appendix A contains a DEP fact sheet titled *What You Need To Know About Microbial Contamination*.

Aquatic Wildlife Recommendations:

- ✓ Monitor wildlife populations in and around reservoirs.
- ✓ Where necessary, discourage and control aquatic wildlife. See <http://mass.gov/dep/brp/dws/protect.htm> for guidance and permits.

8. Protection Planning - Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the watershed towns do not have water supply protection controls that meet DEP's Surface Water Protection regulations 310 CMR 22.20 (b) and (c). A Surface Water Supply Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply reservoirs.

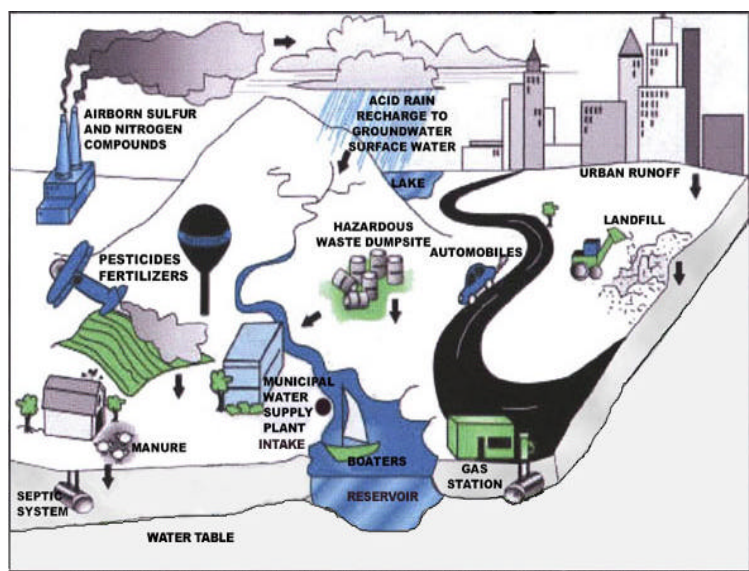


Figure 1: Sample watershed with examples of potential sources of contami-

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Is the Zone A posted with “Public Drinking Water Supply” Signs?	Partial	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone A?	NO	Monitoring non-water supply activities in Zone As. Remove activities where possible
Are Zone A storm drain locations identified?	Partial	Braintree is in the process utilizing GPS to identify locations. Randolph has not started this process. Work with local emergency response teams and businesses on Zone A storm drainage.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Do the watershed communities have Surface Water Protection Controls that meet 310 CMR 22.20C?	NO	Work with neighboring municipalities to include the watershed in their protection controls. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws, health regulations, and current regulations.
Planning		
Does the PWS have a local surface water supply protection plan?	NO	Develop a surface water supply protection plan. Follow “Developing a Local Surface Water Supply Protection Plan” available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal “Emergency Response Plan” to deal with spills or other emergencies?	YES	Supplement plan by developing joint emergency response plans with fire departments, Boards of Health, DPWs, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	NO	Establish a committee with representatives from citizens’ groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Encourage watershed communities to inspect commercial and industrial facilities, especially those that may have floor drains that do not lead to sanitary sewers or tight tanks. For more guidance see “Hazardous Materials Management: A Community’s Guide” at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	Some	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the watersheds.

Protection Planning Recommendations:

- ✓ Complete the Tri-Town Board's Surface Water Supply Protection Plan. Refer your protection team to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Surface Water Supply Protection Plan".
- ✓ Encourage watershed towns to adopt controls that meet 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ Continue to work with municipal boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the municipalities, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the protection areas that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Develop and implement a Surface Water Supply Protection Plan.
- ✓ Work cooperatively with Boards of Health to develop an inventory of septic systems.
- ✓ Work with businesses and others who have landscaped areas in the watersheds to encourage BMPs for the use of fertilizer and pesticide.
- ✓ Continue to partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure cooperation on responding to spills or accidents.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Continue to inspect the Zone A areas regularly, and when feasible, remove prohibited non-water supply activities.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watersheds. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier and town boards.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN TRI TOWN WATER BOARD WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
230030	ABLESTAR CORPORATION	33 WALES AVE	AVON	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
270884	EDART TRUCK RENTAL CORP OF MA	140 WALES AVE	AVON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
226503	TETRA LAVAL FOOD	91 WALES AVE	AVON	PLANT	AIR QUALITY PERMIT
130194	TL EDWARDS INC	100 WALES AVE REAR	AVON	PLANT	RES APPLICATION APPROVED
319625	ABBOTT DAVID R INC	48 BROOKS DR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
292318	ACCESSORY STOP	105 ROCSAM PARK RD	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
130337	AINSLIE CORPORATION	531 POND STREET	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
308849	ANACOMP INC - FARM RIVER	39 BROOKS DRIVE	BRAINTREE	HANDLR	LARGE QUANTITY GENERATOR
266381	BLUE HILL CEMETARY	700 WEST ST	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
331468	BOSTON CARS INC	66 ROC SAM PARK ROAD	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
331468	BOSTON CARS INC	66 ROC SAM PARK ROAD	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
6088	BRAINTREE WATER DEPARTMENT	KING HILL RD	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
216341	CHRISTY FOOD PRODUCTS INC	10 CHARLAM DR	BRAINTREE	DISCH	MWRA SEWER CONNECTION
133490	COCA COLA BOTTLING CO OF NEW ENG	825 GRANITE ST	BRAINTREE	HANDLR	Very Small Quantity Generator
133490	COCA COLA BOTTLING CO OF NEW ENG - Farm River	825 GRANITE ST	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
270912	CON-WAY TRANSPORTATION SERVICES - FARM RIVER	145 LUNDQUIST DR	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR
270912	CON-WAY TRANSPORTATION SERVICES	145 LUNDQUIST DR	BRAINTREE	HANDLR	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
216344	CYTOSOL LABORATORIES	55 MESSINA DR	BRAINTREE	DISCH	MWRA SEWER CONNECTION
319625	DAVID R ABBOTT INC	48 BROOKS DR	BRAINTREE	DISCH	MWRA SEWER CONNECTION
133509	DICKINSON ADVERTISING	120 CAMPANELLI DR	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR
292320	ENTERTAINMENT TOURS	105 ROCSAM PARK DR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
292320	ENTERTAINMENT TOURS	105 ROCSAM PARK DR	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
34972	FAREAST AUTOMOTIVE SERVICE INC	555 POND ST	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR
294197	FORMAL WEAR MANAGEMENT INC	141 CAMPANELLI DR	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR
294197	FORMAL WEAR MANAGEMENT INC	141 CAMPANELLI DR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
242864	FORMALWEAR MANAGEMENT INC	141 CAMPANELLI DR	BRAINTREE	TURRPT	LARGE QUANTITY TOXIC USER
332165	FX MESSINA ENTERPRISES	100 MESSINA DRIVE	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
215602	GEORGE H DEAN COMPANY	140 CAMPANELLI DR	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR
215602	GEORGE H DEAN COMPANY	140 CAMPANELLI DR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
29938	HAEMONETICS CORP	400 WOOD RD	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR
29938	HAEMONETICS CORP	400 WOOD RD	BRAINTREE	HANDLR	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
29938	HAEMONETICS CORPORATION	400 WOOD RD	BRAINTREE	TURRPT	LARGE QUANTITY TOXIC USER
317791	HALL TRASK EQUIPMENT COMPANY	105 ROC SAM PARK RD	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
34105	HAMILTON SPECIALTIES INC	55 MESSINA DR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
31104	HAZELTINE CORP	115 BAY STATE DR	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR
31104	HAZELTINE CORP	115 BAY STATE DR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
34437	INTERSTATE BRANDS	60 POND ST	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR
292316	JAMES AUTO BODY AND REPAIR	105 ROCSAM PARK RD	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
242856	MACDONALD & EVANS PRINTERS INC	1 REX DR	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR
337851	MARCONI AEROSPACE SYSTEMS INC	115 BAY STATE DRIVE	BRAINTREE	DISCH	MWRA SEWER CONNECTION
216371	MILLARD METAL SERVICE	116 LUNDQUIST SR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
282104	N CIBOTTI - FARM RIVER	79 ROC SAM PARK RD	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
37838	NORTHEAST APPAREL INC	1 NORTHEAST WAY CAMPANELLI IND	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
281361	NORTHEAST TRUCK AND AUTO INC	77 ROC SAM PARK RD	BRAINTREE	HANDLR	NON-NOTIFIER HW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
205774	OUTPUT TECHNOLOGIES INC	70 CAMPANELLI DR	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR
205774	OUTPUT TECHNOLOGIES INC	70 CAMPANELLI DR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
365388	PENSKE TRUCK LEASING CO LP	140 MESSINA DR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
365388	PENSKE TRUCK LEASING CO LP	140 MESSINA DR	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
133502	RIVERSIDE AUTO BODY	549 POND ST	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
317319	RS ROWE & COMPANY INC	100 MESSINA DR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
279968	RUAN LEASING CO	15 CHARLAM DR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
279968	RUAN LEASING CO	15 CHARLAM DR	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
282109	STOP & SHOP CO	90 CAMPANELLI DR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
131790	SYMMONS IND INC	31 BROOKS DR	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
133500	TRUCK CENTER OF BRAINTREE	141 MESSINA DR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
133500	TRUCK CENTER OF BRAINTREE	141 MESSINA DR	BRAINTREE	HANDLR	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
11614	VERIZON NEW ENGLAND INC	125 LINQUIST DR	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
36092	WEYMOUTH CONCRETE INC	35 ROC SAM PARK RD	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
136151	CUMBERLAND FARMS 2192	2640 WASHINGTON ST	CANTON	FULDSP	FUEL DISPENSER
367522	EXXONMOBIL OIL CORP	2776 WASHINGTON ST	CANTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
126606	SUNOCO SERVICE STATION	2782 WASHINGTON ST	CANTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
126606	SUNOCO SERVICE STATION	2782 WASHINGTON ST	CANTON		
320072	TEXACO SERVICE STATION	2760 WASHINGTON ST	CANTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
320072	TEXACO SERVICE STATION	2760 WASHINGTON ST	CANTON		

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
288088	MDC BLUE HILLS LABOR YARD - FR	681 HILLSIDE ST	MILTON	FULDSP	FUEL DISPENSER
2824	ARES ADVANCED TECHNOLOGY	280 POND ST	RANDOPH	DISCH	MWRA SEWER CONNECTION
134262	AUTO CRAFT INC	685 NORTH ST	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
126854	BEST PETROLEUM CO INC	870 NORTH MAIN ST	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
342756	BISCO ENVIRONMENTAL	91 PACELLA PARK DRIVE	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
183273	BOSTON CHEMICAL INDUSTRIES INC	92 YORK AVE	RANDOLPH	TURRPT	LARGE QUANTITY TOXIC USER
116121	BOSTON CHEMICAL INDUSTRIES INC	92YORKAVE	RANDOLPH	TURRPT	BELOW TUR REGULATED THRESHOLDS
314651	BOSTON HIGASHI SCHOOL FOR AUTISM	800 NORTH MAIN ST	RANDOLPH	PLANT	NON-NOTIFIER AQ FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
132174	CPC INC	1 CIRCUIT DR	RANDOLPH	TURRPT	LARGE QUANTITY TOXIC USER
132174	CPC INC	1 CIRCUIT DR	RANDOLPH	DISCH	MWRA SEWER CONNECTION
132174	CPC INC	1 CIRCUIT DR	RANDOLPH	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
132174	CPC INCORPORATED	1 CIRCUIT DR	RANDOLPH	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
131624	DAMICO J INC	10 YORK AVE	RANDOLPH	HANDLR	EPA TRANSPORTER (NO COMPLIANCE FEE)

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131624	DAMICO J INC	10 YORK AVE	RANDOLPH	HANDLR	TRANSPORTER
136534	ELIAS & TONY AUTO REPAIR INC	1150 N MAIN ST	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
306291	EMERSON & CUMING MICROWAVE PRODUCTS	28 YORK AVE	RANDOLPH	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
306291	EMERSON & CUMING MICROWAVE PRODUCTS	28 YORK AVE	RANDOLPH	PLANT	BELOW AQ REGULATED THRESHOLDS
51843	FLEXCON INDUSTRIES	300 POND ST	RANDOLPH	PLANT	AQ NATURAL MINOR W/ PTE<MAJ & >50% OF MAJ
51843	FLEXCON INDUSTRIES	300 POND ST	RANDOLPH	DISCH	MWRA SEWER CONNECTION
51843	FLEXCON INDUSTRIES	300 POND ST	RANDOLPH	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
51843	FLEXCON INDUSTRIES	300 POND ST	RANDOLPH	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
319692	HEALTHSTAR INC	1 RANDOLPH RD	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
319692	HEALTHSTAR INC	1 RANDOLPH RD	RANDOLPH	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
184464	HOLIDAY INN	1374 NORTH MAIN STREET	RANDOLPH	DISCH	MWRA SEWER CONNECTION
283603	MD STETSON	92 YORK AVE	RANDOLPH	DISCH	MWRA SEWER CONNECTION
367343	MOBIL 12331	93 MAZZEO DR	RANDOLPH	FULDSP	FUEL DISPENSER STAGEII

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
177982	MOBIL OIL CORP SS N3W	93 MAZZEO DR	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
177982	MOBIL OIL CORP SS N3W	93 MAZZEO DR	RANDOLPH	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
136522	RANDOLPH AUTOMOTIVE SERVICE CENTER INC	1245 NORTH MAIN STREET	RANDOLPH	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
136522	RANDOLPH AUTOMOTIVE SERVICE CENTER INC	1245 NORTH MAIN ST	RANDOLPH	FULDSP	FUEL DISPENSER STAGEII
282125	RANDOLPH ENGINEERING	26 THOMAS PATTEN DR	RANDOLPH	DISCH	MWRA SEWER CONNECTION
282125	RANDOLPH ENGINEERING	26 THOMAS PATTON DR	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
368668	SEARS ROEBUCK & CO 9276	21 PACELLA PARK DR	RANDOLPH	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
285322	SERONO LABORATORIES INC	27 PACELLA PARK DR	RANDOLPH	DISCH	MWRA SEWER CONNECTION
285322	SERONO REPRODUCTIVE BIOLOGY INSTITUTE	27 PACELLA PARK DRIVE	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
325693	SHELL	86 MAZZEO DR	RANDOLPH	FULDSP	FUEL DISPENSER STAGEII
209990	SPEEDY LUBE INC	633 NORTH MAIN ST	RANDOLPH	FULDSP	FUEL DISPENSER STAGEII
136537	SUNOCO	422 NORTH ST	RANDOLPH	FULDSP	FUEL DISPENSER STAGEII
330253	SUNOCO	870 NORTH MAIN ST	RANDOLPH	FULDSP	FUEL DISPENSER STAGEII

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
136537	SUNOCO SERVICE STATION	422 NORTH ST	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
136535	SUPERSHINE CAR WASH CITGO	1201 NORTH MAIN ST	RANDOLPH	FULDSP	FUEL DISPENSER STAGEII
373842	TEK	208 HIGH ST	RANDOLPH	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
373842	TEK	208 HIGH ST	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
319983	TEXACO	1370 NORTH MAIN ST	RANDOLPH	FULDSP	FUEL DISPENSER STAGEII
319983	TEXACO SERVICE STATION	1370 NORTH MAIN ST&SCANLON	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
136534	TNT AUTOMOTIVE INC	1150 NORTH MAIN ST	RANDOLPH	FULDSP	FUEL DISPENSER STAGEII
22849	TRUCKLEASE CORP	55 YORK AVENUE	RANDOLPH	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
22849	TRUCKLEASE CORP	55 YORK AVENUE	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
127222	US POSTAL SERVICE	16 THOMAS PATTEN DR	RANDOLPH	FULDSP	FUEL DISPENSER STAGEII
53143	WILLIAM I HORLICK COMPANY INC	91 PACELLA PARK DR		PLANT	BELOW AQ REGULATED THRESHOLDS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
265359	BJS WHOLESALE CLUB 34	901 TECHNOLOGY CENTER DR	STOUGHTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
208726	GLOBAL RECYCLING TECHNOLOGIES INC	387 PAGE ST UNIT 789	STOUGHTON	DISCH	BELOW INDUSTRIAL WASTE WATER REG LEVELS
2878	HONORCRAFT INC	292 A PAGE ST	STOUGHTON	DISCH	MWRA SEWER CONNECTION
315011	IMAGEMAX INC	80 HAWES WAY	STOUGHTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
54167	KOCHMAN REIDT & HAIGH	471 PAGE ST	STOUGHTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
308583	LESCO INC	387 PAGE ST	STOUGHTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
283875	NATIONAL GRAPHICS INC	471 PAGE ST	STOUGHTON	DISCH	MWRA SEWER CONNECTION
280159	SIGN SYSTEMS INC	421 PAGE ST	STOUGHTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

UNDERGROUND STORAGE TANKS WITHIN TRI TOWN WATER BOARD WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
EDART TRUCK RENTAL	100 WALES AVE FRONT	AVON	TRUCK/TRANSPORT	10000	DIESEL
T L EDWARDS INC	100 REAR WALES AVE	AVON	TRUCK/TRANSPORT	20000	DIESEL
T L EDWARDS INC	100 REAR WALES AVE	AVON	TRUCK/TRANSPORT	5000	GASOLINE
AMI TRUCKLEASE	55 YORK AVE	RANDOLPH	TRUCK/TRANSPORT	10000	DIESEL
MOBIL - #12331	93 MAZZEO DR	RANDOLPH	GAS STATION	10000	GASOLINE
MOBIL - #12331	93 MAZZEO DR	RANDOLPH	GAS STATION	10000	GASOLINE
MOBIL - #12331	93 MAZZEO DR	RANDOLPH	GAS STATION	10000	GASOLINE
MOBIL - #12331	93 MAZZEO DR	RANDOLPH	GAS STATION	10000	GASOLINE
MOBIL - #12331	93 MAZZEO DR	RANDOLPH	GAS STATION	1000	WASTE OIL
MUTUAL	1150 N MAIN ST	RANDOLPH	GAS STATION	6000	GASOLINE
MUTUAL	1150 N MAIN ST	RANDOLPH	GAS STATION	6000	GASOLINE
MUTUAL	1150 N MAIN ST	RANDOLPH	GAS STATION	8000	GASOLINE
NORTH RANDOLPH SERVICE	1201 W MAIN ST	RANDOLPH	GAS STATION	4000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
NORTH RANDOLPH SERVICE	1201 W MAIN ST	RANDOLPH	GAS STATION	4000	GASOLINE
NORTH RANDOLPH SERVICE	1201 W MAIN ST	RANDOLPH	GAS STATION	4000	GASOLINE
NORTH RANDOLPH SERVICE	1201 W MAIN ST	RANDOLPH	GAS STATION	4000	GASOLINE
NORTH RANDOLPH SERVICE	1201 W MAIN ST	RANDOLPH	GAS STATION	4000	GASOLINE
RANDOLPH AUTOMOTIVE SERVICENTER	1245 N MAIN ST	RANDOLPH	GAS STATION	6000	GASOLINE
RANDOLPH AUTOMOTIVE SERVICENTER	1245 N MAIN ST	RANDOLPH	GAS STATION	8000	GASOLINE
RANDOLPH AUTOMOTIVE SERVICENTER	1245 N MAIN ST	RANDOLPH	GAS STATION	8000	GASOLINE
RANDOLPH AUTOMOTIVE SERVICENTER	1245 N MAIN ST	RANDOLPH	GAS STATION	2500	DIESEL
RANDOLPH AUTOMOTIVE SERVICENTER	1245 N MAIN ST	RANDOLPH	GAS STATION	500	WASTE OIL
RYDER STUDENT TRANS	15 YORK AVE	RANDOLPH	TRUCK/TRANSPORT	3000	DIESEL
SHELL SERVICE STATION 22063580306	MAZZEO DR	RANDOLPH	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION 22063580306	MAZZEO DR	RANDOLPH	GAS STATION	8000	GASOLINE
SHELL SERVICE STATION 22063580306	MAZZEO DR	RANDOLPH	GAS STATION	6000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
SPEEDY LUBE AND AUTO CARE	633 N MAIN ST	RANDOLPH	GAS STATION	12000	GASOLINE/D
SUNOCO # 0437-6349	870 N MAIN ST	RANDOLPH	GAS STATION	8000	GASOLINE
SUNOCO # 0437-6349	870 N MAIN ST	RANDOLPH	GAS STATION	8000	GASOLINE
SUNOCO # 0437-6349	870 N MAIN ST	RANDOLPH	GAS STATION	5000	GASOLINE
SUNOCO # 0437-6349	870 N MAIN ST	RANDOLPH	GAS STATION	5000	GASOLINE
US GAS	954 N MAIN ST	RANDOLPH	GAS STATION	8000	GASOLINE
US GAS	954 N MAIN ST	RANDOLPH	GAS STATION	3000	GASOLINE
US GAS	954 N MAIN ST	RANDOLPH	GAS STATION	6000	GASOLINE
US GAS	954 N MAIN ST	RANDOLPH	GAS STATION	3000	GASOLINE
GAGRLER REALTY	KAY WAY & RT 139	STOUGHTON			

FOR MORE INFORMATION ON UNDERGROUND STORAGE TANKS, VISIT THE MASSACHUSETTS DEPARTMENT OF FIRE SERVICES WEB SITE:
[HTTP://WWW.STATE.MA.US/DFS/UST/USTHOME.HTM](http://www.state.ma.us/dfs/ust/usthome.htm)

NOTE: THIS APPENDIX INCLUDES ONLY THOSE FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA(S) THAT MEET STATE REPORTING REQUIREMENTS AND REPORT TO THE APPROPRIATE AGENCIES. ADDITIONAL FACILITIES LOCATED WITHIN THE WATER SUPPLY PROTECTION AREA(S) SHOULD BE CONSIDERED IN LOCAL DRINKING WATER SOURCE PROTECTION PLANNING.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Tri Town Board Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0003431	77 Roc Sam Park Rd	Braintree	Oil
3-0004029	825 Granite St	Braintree	--
3-0016811	681 Hillside St	Milton	Oil
3-0001524	954 North Main St	Randolph	--
3-0019730	105 Mazzeo Dr	Randolph	Oil And Hazardous Material
3-0021031	105 Mazzeo Dr	Randolph	Hazardous Material
4-0010012	1589 Turnpike St	Stoughton	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Burlington Water and Sewer Division

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Burlington Water and Sewer Division
<i>PWS Address</i>	Town Hall – 29 Center Street
<i>City/Town</i>	Burlington, MA 01803-3093
<i>PWS ID Number</i>	3048000
<i>Local Contact</i>	Syamal Chaudhuri – DPW Superintendent
<i>Phone Number</i>	(781) 270-1600

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Emergency Planning Recommendations for Class B River Intakes
4. Source Water Protection
5. Appendices

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

Groundwater Sources

Zone II #: 279

Susceptibility: High

<i>Well Name</i>	<i>Source ID#</i>
Terrace Hall Well #1	3048000-01G
Terrace Hall Well # 2	3048000-02G
Middlesex Pike Well #3	3048000-05G
Middlesex Pike Well #5	3048000-07G
Middlesex Pike Well #4	3048000-08G
Lexington Well #10	3048000-11G
Lexington Well #11	3048000-12G

Surface Water Sources

<i>Source Name</i>	<i>Source ID #</i>	<i>Susceptibility</i>
Shawsheen River	3048000-01S	High
Mill Pond Reservoir	3048000-02S	Moderate

Burlington Water and Sewer Division (Burlington) maintains and operates ten (10) public water supply sources, with the Wyman #8 Tubular Wells being an emergency source. Burlington's water supplies are located within the Shawsheen River basin. The watershed area for the Shawsheen River, which is diverted to the Mill Pond Reservoir, is located in the towns of Bedford, Billerica, Burlington, Concord, Lexington, and Lincoln. A small portion of the water supply protection area for the Mill Pond Reservoir extends into Wilmington and Woburn, with the majority being in Burlington. The water supply protection area for Terrace Hall Well #1 (01G), Terrace Hall Well # 2 (02G), Middlesex Pike Well #3 (05G), Middlesex Pike Well #5 (07G), Middlesex Pike Well #4 (08G), Lexington Well #10 (11G), and Lexington Well #11 (12G) is located within the towns of Burlington and Lexington, with a small portion being in Woburn.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Class B Drinking Water Sources

There are twelve Class B drinking water sources on rivers in Massachusetts, eleven in the urbanized northeast and one in the western part of the State. One of these sources is located on the Shawsheen River. The large watersheds and historically urbanized land uses associated with major rivers makes source protection a challenge at the Class B sources.

A Class B water body source such as the Shawsheen River does not have Zone A, B and C protection areas, as do Class A water body sources. For the purposes of the SWAP assessments, a 400 foot setback area along the river and all feeder streams has been delineated for Class B water body sources that is referred to as an "Emergency Planning Zone".

Land uses and activities within this zone are of particular concern for source protection and emergency planning because of their proximity to the water supply.

River drinking water sources are particularly susceptible to spills and accidental releases from public and private discharges; accidents related to vehicles, railroads, airports, boats; utility easements; fixed site releases at industrial and public facilities; inappropriate use of pesticides and fertilizers; improper disposal of hazardous household waste; and illegal dumping of a variety of substances.

This assessment has been conducted on the watershed area upstream of the Shawsheen River intake. In addition, DEP has delineated a 400-foot emergency planning zone (shown on the GIS map that accompanies this report) adjacent to the river and its tributaries for the purpose of this assessment.

Class B River Intakes

Class B water sources do not have Zone A, B and C protection areas as the Class A sources do. For the purposes of this report, an "Emergency Planning Zone" has been delineated. The **Emergency Planning Zone** is the land area within 400 feet of both sides of the river including all tributary streams and surface water bodies.

Section 2: Land Uses in the Protection Areas

The Zone II, the Zone C for the Mill Pond reservoir, and the watershed for the Shawsheen River intake are primarily a mixture of forest and residential, with a small portion consisting of agricultural, commercial, and industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Activities in Zone A/Emergency Planning Zone
3. Chemical and Hazardous Materials Manufacture, Storage and Use
4. Residential Land Uses
5. Transportation Corridors
6. Road and Maintenance Depots
7. Oil or Hazardous Material Contamination Sites
8. Comprehensive Surface Water Protection Planning

The ranking of susceptibility to contamination for the Shawsheen River Watershed, Terrace Hall Well #1, Terrace Hall Well #2, Middlesex Pike Well #3, Middlesex Pike Well #4, Middlesex Pike Well #5, Lexington Well #10, and Lexington Well #11 is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2. The ranking of susceptibility to contamination for the Mill Pond Reservoir is moderate, based on the presence of at least one moderate threat land use within the water supply protection area, as seen in Table 2.

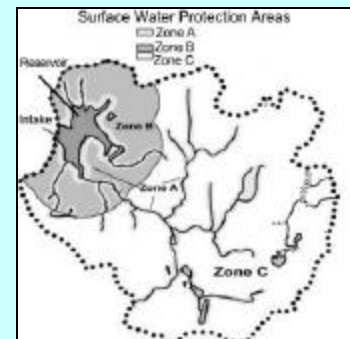
1. Activities in Zone I – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for the Middlesex Pike Well #4 (08G) contains a small portion of the Middlesex Turnpike; and, the Zone I for the Middlesex Pike Well #3 (05G) contains a small portion of a commercial parking lot.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Activities in Zone A/Emergency Planning Zone - A Zone A for a reservoir includes all areas within 400 feet of the reservoir shore line and within 200 feet of either side of all streams and feeder ponds that flow into the reservoir. The Emergency Planning Zone is a 400 foot setback on either side of the river and all tributaries to a Class B river intake. Land use activities within a Zone A or Emergency Planning Zone may have an impact on surface water sources. Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and, un-permitted and unauthorized activities. Also, wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.

Zone A Recommendations:

Work with communities within the combined watersheds to:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A and Emergency Planning Zone should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.
- ✓ Identify stormwater drains and the drainage system along transportation corridors. Work to better manage stormwater by pre-treating contaminated stormwater and/or redirecting stormwater outside of the Zone A and Emergency Planning Zone.
- ✓ Continue your efforts to protect these areas and to monitor and review activities within the Zone A and Emergency Planning Zone.

3. Chemical and Hazardous Materials Manufacture, Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs)/Aboveground Storage Tanks (ASTs). Although many facilities within the watershed use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

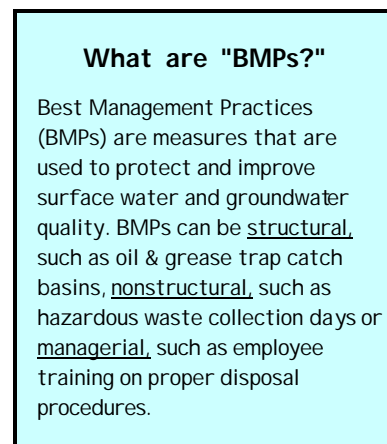
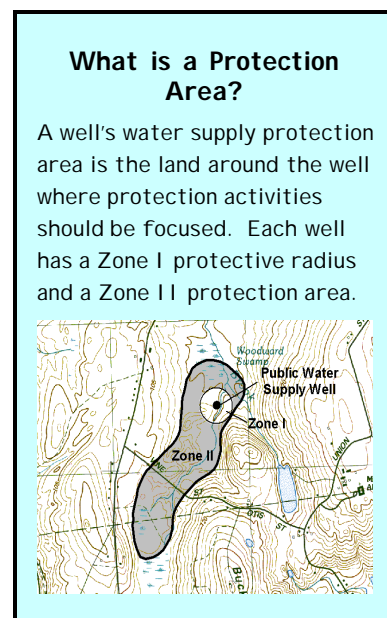
Hazardous Materials Storage and Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure "Industrial Floor Drains" for more information.
- ✓ Continue to plan and prepare for spills by communicating with municipalities and facilities in the Ipswich River watershed, and by conducting drills.

4. Residential Land Uses – Approximately 80% of the Zone II and combined watersheds consist of residential areas, of which a portion is served by private septic systems, with the remainder being served by municipal sewerage. If managed improperly, activities associated with residential areas can contribute to

(Continued on page 8)



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity Zone II & Zone C	Threat	Zone II # Zone C Source ID #	Quantity Shawsheen River Watershed	Potential Contaminant Sources*
Agricultural					
Fertilizer Storage or Use	1	M	279	Few	Leaks, spills, improper handling, or over-application of fertilizers
Landscaping	1	M	279	1	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Pesticide Storage or Use	1	H	279	Few	Leaks, spills, improper handling, or over-application of pesticides
Commercial					
Body Shops	--	H	01S	2	Improper management of vehicle paints, solvents, and primer products
Gas Stations	3	H	279, 01S	17	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	8	H	279, 01S	23	Spills, leaks, or improper handling of automotive fluids, and solvents
Bus and Truck Terminals	1	H	279, 01S	6	Spills, leaks, or improper handling of fuels and maintenance chemicals
Car/Truck/Bus Washes	2	L	279	--	Improper management of vehicle wash water; soaps; oils; greases; metals; salts
Cemeteries	1	M	279	Several	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Dry Cleaners	1	H	279, 01S	4	Spills, leaks, or improper handling of solvents and wastes
Furniture Stripping and Refinishing	--	H	01S	1	Spills, leaks, or improper handling of hazardous chemicals
Golf Courses	--	M	01S	2	Over-application or improper handling of fertilizers or pesticides
Medical Facilities	3	M	279, 01S	7	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes
Nursing Homes	1	L	279	--	Microbial contaminants
Paint Shops	1	H	279, 01S	1	Spills, leaks, or improper handling or storage of paints, solvents, other chemicals
Photo Processors	4	H	279, 01S	3	Spills, leaks, or improper handling or storage of photographic chemicals

Land Uses	Quantity Zone II & Zone C	Threat	Zone II # Zone C Source ID #	Quantity Shawsheen River Watershed	Potential Contaminant Sources*
Commercial					
Printer and Blueprint Shops	2	M	279, 01S	7	Spills, leaks, or improper handling or storage of printing inks and chemicals
Research Laboratories	3	M	279, 01S	3	Spills, leaks, or improper handling or storage of laboratory chemicals and wastes
Sand and Gravel Mining/Washing	2	M	279, 01S	1	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial					
Electronics/Electrical Manufacturers	4	H	279, 01S	3	Spills, leaks, or improper handling or storage of chemicals and process wastes
Electroplaters	1	H	279	--	Spills, leaks, or improper handling or storage of solvents and other chemicals
Food Processors	1	L	279, 01S	3	Spills, leaks, or improper handling or storage of cleaners and other chemicals; microbial contaminants
Foundries or Metal Fabricators	1	H	279, 01S	1	Spills, leaks, or improper handling or storage of solvents and other chemicals
Fuel Oil Distributors	--	H	01S	1	Spills, leaks, or improper handling or storage of fuel oil
Hazardous Materials Storage	1	H	279, 01S	2	Spills, leaks, or improper handling or storage of hazardous materials
Machine/Metalworking Shops	1	H	279, 01S	3	Spills, leaks, or improper handling of solvents; metal tailings
Pharmaceutical Manufacturers	--	H	01S	1	Spills, leaks, or improper handling or storage of chemicals
Residential					
Fuel Oil Storage (at residences)	100+	M	279, 01S, 02S	100+	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	100+	M	279, 01S, 02S	100+	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	numerous	M	279, 01S, 02S	100+	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous					
Aboveground Storage Tanks	Few	M	279, 01S	10	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	--	L	02S	100+	Microbial contaminants
Large Quantity Hazardous Waste Generators	1	H	279, 01S	7	Spills, leaks, or improper handling or storage of hazardous materials and waste
Military Facilities (Past And Present) Type: <u>Air Force</u>	--	H	01S	1	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump sites

Land Uses	Quantity Zone II & Zone C	Threat	Zone II # Zone C Source ID #	Quantity Shawsheen River Watershed	Potential Contaminant Sources*
Miscellaneous					
Oil or Hazardous Material Sites	7	--	279, 01S	52	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	279, 01S	2	Spills, leaks, or improper handling or storage of de-icing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	3	M	279, 01S, 02S	9	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	10	M	279, 01S	26	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains	100+	L	279, 02S	100+	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Superfund Sites	--	H	01S	1	Spills, leaks, or improper handling or storage of oil or hazardous materials and waste
Transmission Line Rights-of-Way	2	L	279, 02S, 01S	Few	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	Few	M	279, 02S	Few	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	15	H	279	100+	Spills, leaks, or improper handling of stored materials
Utility Substation Transformers	1	L	279	--	Spills, leaks, or improper handling of chemicals and other materials including PCBs
Very Small Quantity Hazardous Waste Generators	26	L	279, 01S	80	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer - Hazardous Materials/ Recycling Station	--	M	01S	1	Improper management, seepage, and runoff of water contacting waste materials
Water Treatment Sludge Lagoon	2	M	02S	--	Improper management of sludge and wastewater
<p>Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>					

(Continued from page 4)

drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and

contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

5. Transportation Corridors - Several major transportation corridors and other paved and unpaved local roads cross through the source protection areas. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins. The steep topography of the watershed results in application of de-icing materials to protect public health and safety by keeping the roads passable.

Transportation Corridor Recommendations:

Work with communities within the combined watersheds to:

- ✓ Identify stormwater drains and the drainage system along transportation corridors.
- ✓ Work with the Towns and State to have catch basins inspected, maintained, and cleaned on a regular schedule.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren’t yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Establish vegetated buffers along roads and parking areas to provide some filtration of contaminants.

**When you fertilize the lawn,
Remember
you’re not *just* fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

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- ✓ Encourage regular street sweeping. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.
- ✓ Conduct emergency drills to be ready for spills.
- ✓ Regularly inspect the watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.

6. Road and Maintenance Depots - Potential sources of contamination in state and municipal facilities can result from accidental dumping, spills, leaks, vehicle washing operations, or from wastewater treatment. Waste management and product storage pose the greatest threats with a wide variety of potentially harmful contaminants.

Road and Maintenance Depots Recommendations:

Work with communities within the combined watersheds to:

- ✓ Institute **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/need/muni/index.html>. Encourage road and maintenance depots to develop best management practices to ensure proper salt storage, proper maintenance of facilities and good housekeeping practices.
- ✓ Adequately size salt pile structure to allow for the loading and unloading of salt within the structure. Review the Department of Environmental Protection's Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.
- ✓ Encourage proper storage of materials at these facilities. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.

7. Presence of Oil or Hazardous Material Contamination Sites – The Zone II for Burlington's wells contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 3-0000264, 3-0000266, 3-0000268, 3-0003309, 3-0015930, 3-0018056, and 3-0018519. The Zone III for Burlington's wells contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release

Tracking Numbers 3-0000263, 3-0000267, 3-0000669, and 3-0000981. Refer to the attached maps and Appendix C for more information on these sites, and for information on DEP Tier Classified Oil and/or Hazardous Material Release Sites within the watershed for the Shawsheen River.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

8. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the Town of Burlington has a groundwater protection bylaw that meets DEP's Groundwater Protection regulations 310 CMR 22.21, however, local controls do not meet DEP's Surface Water Protection regulations 310 CMR 22.20 (b) and (c).

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with the watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow to the Zone II.
2. The groundwater in this area probably discharges to surface water feature such as a river rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

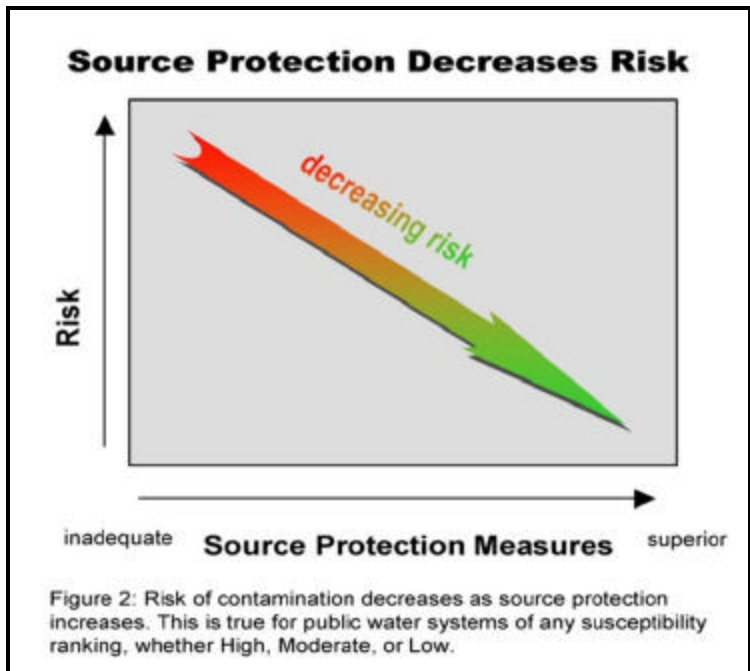


Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and Zone A?	NO Middlesex Pike Well #4 (08G), Middlesex Pike Well #3 (05G), Mill Pond Reservoir (02S)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials. To the extent possible, remove prohibited activities in Zone A and Zone I to comply with DEP's Zone A and Zone I requirements.
Are the Zone I's and Zone A posted with "Public Drinking Water Supply" Signs?	YES	The Emergency Planning Zone for the Shawsheen River Watershed is not posted. Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone I's and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I and Zone A?	NO Middlesex Pike Well #4 (08G), Middlesex Pike Well #3 (05G), Mill Pond Reservoir (02S)	Monitor prohibited activities in Zone A and Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO - Surface YES - Wellhead	Work with the Planning Board and the Burlington Selectmen to compare land use controls to see that they meet current requirements of 310 CMR 22.20 (B) and 310 CMR 22.20 (C). Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	UNKNOWN	Work with adjacent communities to include Burlington's water supply protection areas in their protection controls.
Planning		
Does the PWS have a local surface water and wellhead protection plan?	NO	Develop and implement a surface water supply and wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" and "Developing a Local Surface Water Supply Protection . Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams. Develop spill response plan for Mill Pond Water Treatment Plant
Does the municipality have a watershed protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	SOME	Currently, outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the Zone C.

A Groundwater and Surface Water Supply Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply reservoirs.

Protection Planning Recommendations:

Work with communities within the combined watersheds to:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Encourage watershed towns to adopt controls that meet 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ Continue to work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the towns, see the Executive Office of Environmental Affairs' community preservation web site, <http://compres.env.state.ma.us/>.

Other land uses and activities within the Protection areas that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Top 5 Reasons to Develop a Local Groundwater and Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Section 3: Emergency Planning Recommendations for Class B River Intakes

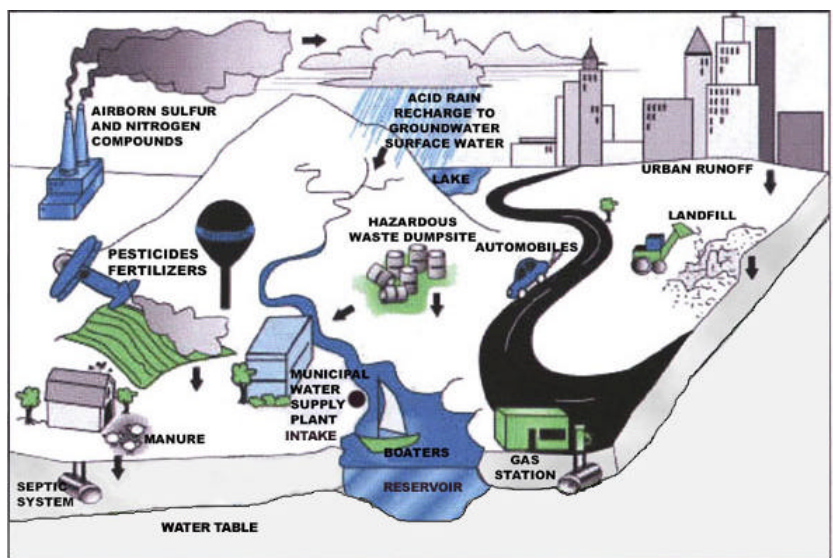
Prevention

Public water suppliers with a river source may take preventive measures to protect the source from unexpected releases. Here are some suggestions.

1. Title III (Emergency Planning and Community Right-to-Know) of the Superfund Amendments & Reauthorization Act (SARA) of 1986 required that each community **develop a comprehensive emergency response plan.**

Suppliers should review the existing plan to ensure that water supply issues are satisfactorily addressed in the plan, that current response personnel and their correct telephone numbers are listed, and that the entire plan is regularly reviewed and updated by community officials.

The community plan, or a separate water supplier plan, should include copies of policies in the event of spills or releases; regulatory notification requirements such as what size spills are required to be reported, who to call, telephone numbers, and what information is required to be reported; map of intakes, tributaries, watershed boundaries, adjacent public wells, and locations of sites where spills or accidental releases could occur.



MODIFIED FROM © 2000 The Groundwater Foundation. Illustrated by C. Mansfield, The Groundwater Foundation

Figure 1: Sample watershed with examples of potential sources of contamination

2. **Identify, map and distribute information** to local emergency responders regarding the locations of intakes on the river, tributaries, watershed boundaries, public wells adjacent to river; chemical use at municipal, state, and industrial facilities in watershed (contact Fire Dept., DEP); locations of stormwater drains and the locations of known dams in the event that they can be manipulated by authorized individuals for contaminant control.

The Fire Dept., Board of Health, Planning Board, Local Emergency Planning Committee (LEPC), DEP and others may have existing information to help with your work. SARA requires companies to work with the community's LEPC if they handle extremely hazardous chemicals in quantities above established thresholds.

3. **Develop a communication list** of contacts at upstream and downstream facilities, dams, as well as other public water suppliers on, or adjacent to, rivers. Notify owners and operators of these facilities about the location of your intake and request, in writing, that you be notified immediately in the event of a chemical spill or unexpected discharge. Take this opportunity to educate others about water supply protection.
4. **Provide comments** to municipal boards in other cities/towns in the watershed about proposed development, land use controls, Best Management Practices (BMPs) for stormwater flow into tributaries, and other issues to avoid future problems.
5. **Post signs** along major roads in watershed which direct the public to call "911" or other appropriate local number in case of spills. Be aware of accident-prone areas and transport routes of chemicals if possible.
6. **Educate** the public, local officials, Civil Defense, local emergency response team, and others about water supply protection issues. Educate businesses about toxic use reduction.

7. **Conduct household hazardous waste collection days** and establish permanent collection sites, away from sensitive watershed areas, for used batteries, paints, motor oil, etc.

8. **Conduct drills**, in coordination with local/regional response teams, to test policies and procedures and to practice responding to various situations. Including businesses, local officials and staff, Fire Departments, Boards of Health, Civil Defense, school administration, and others in planning and implementing the drills will allow for several town or region-wide concerns to be addressed and tested at the same time, including: issuing health advisories, conducting neighborhood and/or school evacuations, and evaluating the town's communication system (both making responders aware of the emergency and issuing advisories to the public when necessary via television, radio, and other news media), equipment and emergency plan in general.

9. Critique the drills and **modify components** of the emergency response system as needed.

**When you wash your car in the driveway,
Remember
you're not *just* washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

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Responding to Emergencies

Drinking water supply professionals responding to local emergencies need to be adequately prepared and trained, and know their roles and responsibilities. Here are some suggestions.

1. **Know regulatory reporting requirements** of state and federal agencies. Know who to call, telephone numbers and what information to report.
2. **Know your role & responsibilities**. Have access to, and be familiar with, the emergency communication list, policies and procedures for emergency response; know when, and how, to safely handle spills or other events until first responders arrive on scene; know what steps to take to avoid drawing contaminants into the water supply system; be familiar enough with local watershed characteristics to provide incident commander with information and advice.
3. **Provide training and materials to responding staff**. Water supply staff, including new employees, should be adequately trained, have access to appropriate materials (storm drain covers, absorbent pads, booms, etc.), up-to-date policies, procedures, and communication lists to perform tasks for which they are responsible.

Follow-up

Steps can be taken to ensure better preparedness in the event of future emergency situations. Here are some suggestions.

1. **Provide follow-up reports** to the public on the resolution of the situation.
2. **Share the information** learned from drills and real situations with others in order to better protect all public drinking water sources.

Section 4: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Current Land Uses and Source Protection:

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Quarterly monitoring of Vine Brook
- Developed Quality Assurance Project Plan for Vine Brook Comprehensive Bacterial Study
- DPW participates in EPA Highway Garage Program
- Adopting toxic and hazardous materials bylaw
- Ownership of 180 acres surrounding Vine Brook
- Having, through the Board of Health, an active role in the redevelopment of former commercial and industrial sites
- All stormwater design plans reviewed by Board of Health

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Develop and implement a Groundwater and Surface Water Supply Protection Plan.
- ✓ Educate residents on ways they can help you to protect drinking water sources.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in watersheds and to cooperate on responding to spills or accidents.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or hazardous materials contamination site.
- ✓ Work cooperatively with Boards of Health to develop an inventory of septic systems in watersheds.
- ✓ Work with businesses and others who have landscaped areas in the watersheds to encourage BMPs for the use of fertilizer and pesticide.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Continue to inspect the Zone A and Zone I areas regularly, and when feasible, remove prohibited non-water supply activities.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects.

Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II and watersheds. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 5: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

**APPENDIX A: DEP PERMITTED FACILITIES WITHIN BURLINGTON WATER SUPPLY PROTECTION AREAS
(INCLUDING SHAWSHEEN RIVER WATERSHED)**

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
357405	AFFYMETRIX INC	4G CROSBY DR	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
176966	ALLEGIANCE HEALTHCARE CORPORATION	26 WIGGINS AVE	BEDFORD	PLANT	AIR QUALITY PERMIT
133412	AMRAY INC	160 MIDDLESEX TNPK	BEDFORD	DISCH	MWRA SEWER CONNECTION
373320	APPLIED BIOSYSTEMS	2 PRESTON CT	BEDFORD	PLANT	AIR QUALITY PERMIT
193749	APPLIED BIOSYSTEMS	47 WIGGINS AVE	BEDFORD	DISCH	MWRA SEWER CONNECTION
369270	ARRADIAL INC	8 PRESTON CT	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
185702	ATEX INC	15 CROSBY DR	BEDFORD	DISCH	MWRA SEWER CONNECTION
205026	ATEX INC	32 WIGGINS AVE	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
330941	BANDWIDTH SEMICONDUCTOR	40 WIGGINS AVENUE	BEDFORD	HANDLR	AIR QUALITY PERMIT
342879	BECTON DICKINSON LABWARE	2 OAK PARK	BEDFORD	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
34799	BEDFORD AUTO BODY & REPAIR INC	4 CHARLES ST	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
294157	BEDFORD CLEANERS	200 GREAT RD SUITE #7A	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
5618	BEDFORD DEPARTMENT OF PUBLIC WORKS	314 GREAT RD	BEDFORD	FULDSP	FUEL DISPENSER
230337	BEDFORD JUNIOR HIGH	MCMAHON RD	BEDFORD	PLANT	AIR QUALITY PERMIT
282375	BEDFORD PHOTO	363 GREAT RD	BEDFORD	DISCH	MWRA SEWER CONNECTION
35507	BEDFORD SENIOR HIGH SCHOOL	9 MUDGE WAY	BEDFORD	PLANT	AIR QUALITY PERMIT
32257	BEDFORD SUNOCO & TIRE CENTER	180 GREAT RD	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
38210	BEDFORD TEXACO INC	105 GREAT RD	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
299534	BEDFORD VIDEO	68 GREAT RD	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
9557	BEDFORD WATER DEPT	314 GREAT RD	BEDFORD	SURFAC	SURFACE WATER DISCHARGE
230319	BEDROCK CONSTRUCTION	198 CONCORD RD	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
27815	BIERENS GARAGE	50 CONCORD RD	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
361383	BOSTON PROBES INC	15 DEANGELO DR	BEDFORD	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
369317	CALIPER SYSTEMS INC	23 CROSBY DR	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
335908	CANCER GENOMICS INC	8 A PRESTON COURT	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
215897	CIS-US	5 DEANGELO DR	BEDFORD	DISCH	MWRA SEWER CONNECTION
183854	COLLABORATIVE BIOMEDICAL PRODUCT	2 OAK PARK	BEDFORD	DISCH	MWRA SEWER CONNECTION
31941	COMPUTERVISION CORP	100 CROSBY DR	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
376406	CONOCOPHILLIPS EXXON 2634702	349 GREAT RD	BEDFORD	FULDSP	FUEL DISPENSER
281494	CORNING LASERTRON	11 OAK PARK	BEDFORD	DISCH	MWRA SEWER CONNECTION
298337	CVS #0736	199 GREAT RD	BEDFORD	DISCH	MWRA SEWER CONNECTION
133406	DIGITAL EQUIPMENT CORPORATION	BLDG 1730 HANSCOM FIELD	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
37055	DOUGLAS BILL INC	198 GREAT RD	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
215637	EKTRON APPLIED IMAGING INC	23 CROSBY DR	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
126407	EXXON CO USA 35681	349 THE GREAT RD	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
310926	GAMMYS COUNTRY STORE	44 NORTH RD	BEDFORD	FULDSP	FUEL DISPENSER
133413	GEORGE L MEADE FOUNDRY CO.	244 SOUTH RD	BEDFORD	DISCH	MWRA SEWER CONNECTION
272646	GOULD MOTORS INC	25 NORTH RD	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
33809	HANSCOM FIELD CIVILIAN TERMINAL LG	HANSCOM AIRFIELD	BEDFORD	FULDSP	FUEL DISPENSER
317340	HOLOGIC INC	35 CROSBY DR	BEDFORD	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
338707	HOLOGRAPHIC LITHOGRAPHY SYSTEMS INC	3 PRESTON COURT	BEDFORD	HANDLR	AIR QUALITY PERMIT
133414	JIFFY LUBE	331 GREAT RD	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
52756	LANE SCHOOL	9 MUDGE WAY	BEDFORD	PLANT	AIR QUALITY PERMIT

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
357802	LATRAN TECHNOLOGIES LLC	6 CROSBY DR	BEDFORD	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
294158	LUONGOS DRY CLEANERS INC	32 SHAWSHEEN AVE	BEDFORD	PLANT	AIR QUALITY PERMIT
133415	LUTHER K W CO INC	1 COMMERCIAL AVE	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
283608	MABBETT AND ASSOCIATES	5 ALFRED CIR	BEDFORD	DISCH	MWRA SEWER CONNECTION
116566	MEDICA CORP	14 DEANGELO DR	BEDFORD	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
287376	MEDISENSE INCORPORATED	4 CROSBY DR	BEDFORD	DISCH	MWRA SEWER CONNECTION
130269	MILLIPORE CORP	80 ASHBY RD	BEDFORD	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
215542	MILLIPORE CORPORATION	32 WIGGINS AVENUE	BEDFORD	DISCH	MWRA SEWER CONNECTION
215948	MILLIPORE CORPORATION	75 WIGGINS AVE	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
215948	MILLIPORE CORPORATION	75 WIGGINS AVE	BEDFORD	TURRPT	LARGE QUANTITY TOXICS USER
329095	MINUTEMAN VOLKSWAGEN	39 NORTH ROAD	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
207374	MITRE CORP	202 BURLINGTON RD	BEDFORD	PLANT	AIR QUALITY PERMIT
34195	MITRE CORP THE	HANSCOM A F B BLDG 1521	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
34195	MITRE CORP THE	HANSCOM A F B BLDG 1521	BEDFORD	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
207374	MITRE CORPORATION	202 BURLINGTON RD	BEDFORD	DISCH	MWRA SEWER CONNECTION
359822	MYKROLIS CORPORATION	80 ASHBY RD	BEDFORD	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
337638	NITROMED INC	12 OAK PARK DRIVE	BEDFORD	DISCH	MWRA SEWER CONNECTION
284196	OPTA FOOD INGREDIENTS INC	25 WIGGINS AVE	BEDFORD	DISCH	MWRA SEWER CONNECTION
342523	OPTICAL SWITCH CORPORATION	3 PRESTON COURT	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
52529	OPTRON SYSTEMS INC	3 PRESTON CT	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
336099	PATRIOT GOLF COURSE	200 SPRINGS ROAD BLDG 49	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
339580	PRE OWNED ELECTRONICS INC	125 MIDDLESEX TURNPIKE	BEDFORD	DISCH	MWRA SEWER CONNECTION

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
31387	RAYTHEON ELECTRONIC SYSTEMS	180 HARTWELL RD	BEDFORD	DISCH	MWRA SEWER CONNECTION
31387	RAYTHEON ELECTRONIC SYSTEMS	180 HARTWELL RD	BEDFORD	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
133411	SCHNEEBERGER INC	7 DEANGELO DR	BEDFORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
295500	SCI TEX NORTH AMERICA CORP	8 OAK PARK DR	BEDFORD	DISCH	MWRA SEWER CONNECTION
325264	SHELL 137706	358 GREAT RD	BEDFORD	FULDSP	FUEL DISPENSER
131742	SPIRE CORP	PATRIOTS PK	BEDFORD	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
135819	STADIUM MOBIL	181 GREAT RD	BEDFORD	FULDSP	FUEL DISPENSER
135676	SUNOCO 0005 3827	180 GREAT RD	BEDFORD	FULDSP	FUEL DISPENSER
29343	TAYLOR & LLOYD INC	8 RAILROAD AVE	BEDFORD	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
178575	TOXIKON CORPORATION	15 WIGGINS AVE	BEDFORD	DISCH	MWRA SEWER CONNECTION
287345	TYTRONICS INC	25 WIGGINS AVE	BEDFORD	DISCH	MWRA SEWER CONNECTION

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
374403	US DEPT OF NAVY ENGR FIELD ACTIVITY NE	HARTWELL RD	BEDFORD	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
374403	US HANSCOM AIR FORCE BASE	HARTWELL RD	BEDFORD	TRSTN	TRANSFER STATION FOR HAZARDOUS MATERIAL
374403	US HANSCOM AIR FORCE BASE	HARTWELL RD	BEDFORD	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
131338	US VETERANS ADMINISTRATION MEDICAL CENTE	200 SPRINGS RD	BEDFORD	PLANT	RES APPLICATION APPROVED
130267	WE ANDREWS COMPANY INC	140 SOUTH RD	BEDFORD	PLANT	AIR QUALITY PERMIT
216401	AMERICAN FOOD SYSTEMS	30 B ST	BURLINGTON	DISCH	MWRA SEWER CONNECTION
216486	ASSOCIATED TESTING LABS	53 SECOND AVE	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
29221	AZONIX CORP	25 ADAMS ST	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
216411	BORJOHN GALAXIE	18A ST	BURLINGTON	DISCH	MWRA SEWER CONNECTION
37351	BURLINGTON DEPARTMENT OF PUBLIC WORKS	MEADOW ROAD	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
29604	BURLINGTON DODGE INC	90 MIDDLESEX TNPK	BURLINGTON	HANDLR	SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
107112	BURLINGTON SAND & GRAVEL	14 WHEELER RD	BURLINGTON	HANDLR	SMALL QUANTITY GENERATOR
343756	BURLINGTON VETERINARY HOSPITAL	64 MIDDLESEX TURN	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
257366	CGI INCORPORATED	5 OLD CONCORD RD	BURLINGTON	DISCH	MWRA SEWER CONNECTION
27584	CLARK & REID CO INC	1 DUNHAM RD	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
338472	CORETEK INC	25 B STREET	BURLINGTON	DISCH	MWRA SEWER CONNECTION
369284	DYNAMET TECHNOLOGY INC	8 A ST	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
357935	EQUITY OFFICE PROPERTIES	3 NEW ENGLAND EXE	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
207956	EXPRESSLY PORTRAITS #100	BURLINGTON MALL	BURLINGTON	HANDLR	SMALL QUANTITY GENERATOR
177646	EXXON CO USA 35749	90 MIDDLESEX TNPK	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
229838	FRANCIS WYMAN MIDDLE SCHOOL	TERRACE HALL AVE	BURLINGTON	PLANT	AIR QUALITY PERMIT
208445	GALAXIE LAB INC	18 A ST	BURLINGTON	HANDLR	SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
334873	GETOV MACHINE INC	78 BLANCHARD ROAD	BURLINGTON	HANDLR	SMALL QUANTITY GENERATOR
130450	GOODWAY GRAPHICS OF MASSACHUSETTS	16 A ST	BURLINGTON	HANDLR	SMALL QUANTITY GENERATOR
136551	HERTZ CORPORATION	68 MIDDLESEX TURN	BURLINGTON	FULDSP	FUEL DISPENSER
327579	HOMESTEAD VILLAGE	40 SOUTH AVENUE	BURLINGTON	DISCH	MWRA SEWER CONNECTION
265578	JIFFY LUBE STORE 1495	1100 MIDDLESEX TN	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
357151	JOHN CARUSO LANDSCAPING INC	2 WHEELER RD	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
265037	JORDAN MARSH SULLIVAN TIRE	BURLINGTON MALL	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
130446	LAHEY HITCHCOCK MEDICAL CENTER	41 MALL RD	BURLINGTON	DISCH	MWRA SEWER CONNECTION
306346	MA COM INC	33R SECOND AVE	BURLINGTON	HANDLR	SMALL QUANTITY GENERATOR
130444	MA COM INC	43 SOUTH AVE	BURLINGTON	DISCH	MWRA SEWER CONNECTION
10588	MA HOSPITAL ASSOCIATION	5 NEW ENGLAND EXE	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
367510	MOBIL 10255	50 MIDDLESEX TNPK	BURLINGTON	FULDSP	FUEL DISPENSER
32943	NEAT N CLEAN DRY CLEANERS	228 CAMBRIDGE STR	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
37275	NEDS TEXACO SERVICE	49 MIDDLESEX TNPK	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
358001	NEUBER INDUSTRIAL DIAMOND	10 B ST	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
32739	NIXDORF COMPUTER CORP	23 FOURTH AVE	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
130454	QUINN PERKINS SAND & GRAVEL	ADAMS STREET	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
295396	RITZ CAMERA	95 MALL RD	BURLINGTON	HANDLR	SMALL QUANTITY GENERATOR
293993	RYDER TRANSPORTATION SERVICE	2 MEADOW RD	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
130448	SEARS ROEBUCK & CO	1100 BURLINGTON M	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
325325	SHELL 116789	61 MIDDLESEX TPKE	BURLINGTON	FULDSP	FUEL DISPENSER
133584	STEWART HUNT INC	8 GARFIELD CIR	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERAT

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
216459	STRATO REPROGRAPHIX	82 MIDDLESEX TNPK	BURLINGTON	DISCH	MWRA SEWER CONNECTION
334393	SULLIVAN TIRE CO INC	BURLINGTON MALL	BURLINGTON	HANDLR	SMALL QUANTITY GENERATOR
343664	SURMET CORPORATION	33 B STREET	BURLINGTON	HANDLR	SMALL QUANTITY GENERATOR
364387	TOSCO CORP	181 CAMBRIDGE ST	BURLINGTON	HANDLR	SMALL QUANTITY GENERATOR
327585	VINEBROOK GROUNDWATER TRE	171 MIDDLESEX TUR	BURLINGTON	DISCH	MWRA SEWER CONNECTION
130445	WHITE CONSOLIDATED INDUST	15 ADAMS ST	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
216665	ZOLL MEDICAL CORP	32 SECOND AVE	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR
216665	ZOLL MEDICAL CORP	32 SECOND AVE	BURLINGTON	FULDSP	FUEL DISPENSER
216665	ZOLL MEDICAL CORP	32 SECOND AVE	BURLINGTON	TURRPT	LARGE QUANTITY TOXICS USER
216665	ZOLL MEDICAL CORP	32 SECOND AVE	BURLINGTON	HANDLR	SMALL QUANTITY GENERATOR
36078	A M A TRANSPORTATION CO INC	12 DUNHAM RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
313056	ADVANCED SURFACE TECHNOLO	9 LINNELL CIR	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
281496	AMERICAN SCIENCE AND ENGINEERING	829 MIDDLESEX TNP	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF
130304	AOTCO METAL FINISHING	11 SUBURBAN PARK	BILLERICA	PLANT	AIR QUALITY PERMIT
343099	ARROW REPAIR	1 INNIS DRIVE BAY	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
135861	BERMAN REPAIR & SALES INC	221 ANDOVER ST	BILLERICA	FULDSP	FUEL DISPENSER
251308	BILLERICA TIRE AND AUTO REPAIR	737 BOSTON RD	BILLERICA	DISCH	BELOW INDUSTRIAL WASTE WATE
251308	BILLERICA TIRE AND AUTO REPAIR	737 BOSTON RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
375422	BOSTON ROAD GAS	737 BOSTON RD	BILLERICA	FULDSP	FUEL DISPENSER
133459	BOUDREAUS JIM MUFFLER CON	737 BOSTON RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
375886	BROOKS PRI AUTOMATION	805 MIDDLESEX TUR	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
205721	C M C TORQUE SYSTEMS DIVISION	829A MIDDLESEX TN	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
34263	C R MACHINE CO INC	13 ALEXANDER RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
343097	CARROLL AUTO BODY	1 INNIS DRIVE	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
132492	DYNAMIC MACHINE WORKS INC	12 SUBURBAN PK DR	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF
135014	EPOXY TECHNOLOGY INC	14 FORTUNE DR	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
27660	FARMER J E INC	4 EVERETT RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
131764	FURNITURE STRIPPING/REFINISHING	2 INNIS DR	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF
126461	GETTY 30610	581 BOSTON POST RD	BILLERICA	FULDSP	FUEL DISPENSER
133455	HILLQUIST W K INC	35 DUNHAM RD	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF
133457	JIFFY LUBE	720 BOSTON RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
378225	LAB MEDICAL	28 COOK ST	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
33894	MIDAS MUFFLER	556 BOSTON RD	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
374349	MILLIPORE CORPORATION	900 MIDDLESEX TNP	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF
34908	NEW ENGLAND MOTOR FREIGHT	9 DUNHAM RD	BILLE RICA	HANDLR	VERY SMALL QUANTITY GENERAT
365558	NEWPORT CORP	5 SUBURBAN PARK DR	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
329255	NUTCRACKER BRANDS INC	26 COOK STREET	BILLERICA	PLANT	AIR QUALITY PERMIT
36165	PAIGES JENNEY SERVICE STATION	812 BOSTON RD	PINEHURST	HANDLR	VERY SMALL QUANTITY GENERAT
329030	PREPRESS SOLUTIONS INC	29 DUNHAM ROAD	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF
340826	RADIONICS	6 COOK STREET	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
363441	ROUTE 3A ENTERPRISES LLC	760 BOSTON RD	BILLERICA	FULDSP	FUEL DISPENSER
2446	ROY BROTHERS INC	764 BOSTON RD	BILLERICA	DISCH	INDUSTRIAL WASTE WATER TO S
377563	RWE SCHOTT SOLAR INC	4 SUBURBAN PARK D	BILLERICA	DISCH	INDUSTRIAL WASTE WATER TO S
300518	RYDER TRANSPORTATION SERV	1 DUNHAM RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
241662	SCHLUMBERGER	829 MIDDLESEX TNP	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
130310	SHAWSHEEN TECHNICAL HIGH SCHOOL	100 COOK ST	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF
191472	SIPEX CORPORATION	22 LINNELL CIR	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
300522	SPECTRUM PRINTING & GRAPH	31 DUNHAM RD	BILLERICA	HANDLR	SMALL QUANTITY GENERATOR OF
371114	USF RED STAR INC	2-4 DUNHAM RD	BILLERICA	HANDLR	VERY SMALL QUANTITY GENERAT
36804	CONCORD CARLISLE REGIONAL SCHOOL	120 MERIAM ST	CONCORD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
296062	DRAPER LABORATORY SPECIAL TEST FACILITY	711 VIRGINIA RD	CONCORD	PLANT	AIR QUALITY PERMIT
296062	DRAPER LABORATORY SPECIAL TEST FACILITY	711 VIRGINIA RD	CONCORD	FULDSP	FUEL DISPENSER
132381	BATTLE GREEN SHELL STATION	46 BEDFORD ST	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
292839	BETH ISRAEL CHILDRENS HOSPITAL	482 BEDFORD ST	LEXINGTON	DISCH	MWRA SEWER CONNECTION
29029	C & W TRANS INC	240 BEDFORD ST	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
295256	CAMERAS INC	1740 MASSACHUSETTS AVE	LEXINGTON	DISCH	MWRA SEWER CONNECTION
378633	CLEAN HARBORS ENVIRONMENTAL SERVICES INC	60 HARTWELL AVE	LEXINGTON	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
177173	CUMBERLAND GULF 118753	39 BEDFORD ST	LEXINGTON	FULDSP	FUEL DISPENSER
325858	CVS #0307	1735 MASSACHUSETTS AVE	LEXINGTON	DISCH	MWRA SEWER CONNECTION
216968	FUJI IMMUNO PHARMACEUTICALS CORP	125 HARTWELL AVE	LEXINGTON	DISCH	MWRA SEWER CONNECTION
365460	GENZYME	4 MAGUIRE RD	LEXINGTON	PLANT	AIR QUALITY PERMIT
365863	GOODRICH CORP	4 HARTWELL PL	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130976	INSTRUMENTATION LABORATORY	113 HARTWELL AVE	LEXINGTON	DISCH	MWRA SEWER CONNECTION
7288	LEXINGTON DEPARTMENT OF PUBLIC WORKS	201 BEDFORD ST	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
52761	LEXINGTON HIGH SCHOOL	251 WALTHAM ST	LEXINGTON	PLANT	AIR QUALITY PERMIT
319266	LEXINGTON PODIATRY	76 BEDFORD ST STE 31	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
216981	LEXINGTON PRESS INC	7 OAKLAND ST	LEXINGTON	DISCH	MWRA SEWER CONNECTION
216981	LEXINGTON PRESS INC THE	7 OAKLAND ST	LEXINGTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
52511	MASSACHUSETTS INSTITUTE OF TECHNOLOGY	244 WOOD ST	LEXINGTON	PLANT	AIR QUALITY PERMIT
371851	MEDISPECTRA INC	45 HARTWELL AVE	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131532	MIT LINCOLN LABORATORY	244 WOOD ST	LEXINGTON	DISCH	MWRA SEWER CONNECTION
367652	MOBIL 12258	647 LOWELL ST	LEXINGTON	FULDSP	FUEL DISPENSER
52957	PLANT ACTION INC	544 LOWELL ST	LEXINGTON	PLANT	AIR QUALITY PERMIT
325492	SHELL 137779	46 BEDFORD ST	LEXINGTON	FULDSP	FUEL DISPENSER
300520	SHIONOGI BIORESEARCH CORPORATION	45 HARTWELL AVE	LEXINGTON	DISCH	MWRA SEWER CONNECTION
116356	SIR SPEEDY INC	76 BEDFORD ST #6	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
292841	TOWN OF LEXINGTON	1625 MASSACHUSETTS AVE	LEXINGTON	DISCH	MWRA SEWER CONNECTION

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
343378	TYCO ADHESIVES LP	17 HARTWELL AVE	LEXINGTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
318420	VARIAN INC	121 HARTWELL AVE	LEXINGTON	TURRPT	LARGE QUANTITY TOXICS USER
297074	WALGREENS #1863	60 BEDFORD ST	LEXINGTON	DISCH	MWRA SEWER CONNECTION
338002	ZYCOS INC	44 HARTWELL AVE	LEXINGTON	FULDSP	FUEL DISPENSER
338002	ZYCOS INC	44 HARTWELL AVE	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
338002	ZYCOS INC	44 HARTWELL AVE	LEXINGTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
338002	ZYCOS INC	44 HARTWELL AVE	LEXINGTON	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
338002	ZYCOS INC	44 HARTWELL AVE	LEXINGTON	TURRPT	LARGE QUANTITY TOXICS USER

**UNDERGROUNDWATER STORAGE TANKS WITHIN BURLINGTON WATER SUPPLY PROTECTION AREAS
(INCLUDING SHAWSHEEN RIVER WATERSHED)**

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
BEDFORD DPW GARAGE	314 GREAT RD	BEDFORD	OTHER	3
BEDFORD TEXACO	105 GREAT RD	BEDFORD	GAS STATION	3
BELL ATLANTIC 6248-06	70 PAGE RD	BEDFORD	UTILITIES	1
ENRM VA MEDICAL CENTER	200 SPRINGS RD	BEDFORD	FEDERAL / MILITARY	16
CARLETON-WILLARD HOMES INC	100 OLD BILLERICA RD	BEDFORD	OTHER	2
GAMMYS COUNTRY STORE	44 NORTH RD	BEDFORD	GAS STATION	3
HANSCOM FIELD BUILDING MAINTENANCE	HANSCOM FIELD	BEDFORD	FEDERAL / MILITARY	5
MASS PORT CIVIL TERMINAL - MAINTENANCE	HANSCOM AIR FIELD	BEDFORD	AIRPORT	3
SEWER PUMPING STATION	299 GREAT RD	BEDFORD	MUNICIPAL	1
SHAWSHEEN WELLFIELD	131 SHAWSHEEN RD	BEDFORD	OTHER	1

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
SHELL 137706	358 GREAT RD	BEDFORD	GAS STATION	3
STADIUM MOBIL	181 GREAT RD	BEDFORD	GAS STATION	4
SUNOCO 0005 3827	180 GREAT RD	BEDFORD	GAS STATION	4
TAYLOR & LLOYD INC	8 RAILROAD AVE	BEDFORD	VEHICLE DEALER	1
TOSCO EXXON	349 GREAT RD	BEDFORD	GAS STATION	3
AMA TRANSPORTATION CO INC	28 PLANK ST	BILLERICA	TRUCK/TRANSPORT	1
BERMAN REPAIR & SALES INC	221 ANDOVER ST	BILLERICA	GAS STATION	4
GETTY 30610	581 BOSTON POST RD	BILLERICA	GAS STATION	4
NEW ENGLAND MOTOR FREIGHT	9 DUNHAM RD	BILLERICA	TRUCK/TRANSPORT	2
NEW ENGLAND WHEELS	50 DUNHAM RD	BILLERICA	TRUCK/TRANSPORT	2
PERMA INC	605 SPRING ST	BILLERICA	INDUSTRIAL	4

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
ROUTE 3A ENTERPRISES LLC	760 BOSTON RD	BILLERICA	GAS STATION	2
ROY BROS INC	764 BOSTON RD	BILLERICA	TRUCK/TRANSPORT	1
TOWNE PLAZA INC	737 BOSTON RD	BILLERICA	GAS STATION	3
BELL ATLANTIC	1 BEDFORD ST	BURLINGTON	UTILITIES	2
BURLINGTON AUTO SALES & SERVICE	324 CAMBRIDGE ST	BURLINGTON	GAS STATION/ VEHICLE DEALER	5
BURLINGTON TEXACO	161 BEDFORD ST	BURLINGTON	GAS STATION	3
HARRINGTON'S AUTOMOTIVE INC	118 CAMBRIDGE ST	BURLINGTON	GAS STATION	3
HERTZ RENT-A-CAR	68 MIDDLESEX TURNPIKE	BURLINGTON	CAR RENTAL	1
HESS	110 CAMBRIDGE ST	BURLINGTON	GAS STATION	3
LAHEY CLINIC	41 MALL RD	BURLINGTON	HOSPITAL	2
MOBIL #01-JEL	50 MIDDLESEX TURNPIKE	BURLINGTON	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
MOBIL S/S #01-PPY	173 BEDFORD ST	BURLINGTON	GAS STATION	4
SHELL SERVICE STATION 22010300204	61-63 MIDDLESEX TURNPIKE	BURLINGTON	GAS STATION	4
SHELL SERVICE STATION	140 CAMBRIDGE ST	BURLINGTON	GAS STATION	4
TOSCO EXXON #2634718	181 CAMBRIDGE ST	BURLINGTON	GAS STATION	4
TOWN OF BURLINGTON	29 CENTER ST	BURLINGTON	MUNICIPAL	2
WRKO TRASMITTER	8 GREAT MEADOW RD	BURLINGTON	BROADCAST TRANSMITTER	1
MIT LINCOLN LAB FLIGHT FACILITY	711 VIRGINIA RD	CONCORD	FEDERAL / NON-MILITARY	3
C & W TRANSPORTATION	240 BEDFORD ST	LEXINGTON	TRUCK/TRANSPORT	2
CUMBERLAND FARMS #118753	39 BEDFORD ST	LEXINGTON	GAS STATION	3
DIAMOND MIDDLE SCHOOL	99 HANCOCK ST	LEXINGTON	OTHER	1
LEXINGTON GOLF CLUB	55 HILL ST	LEXINGTON	COUNTRY CLUB/ GOLF COURSE	1

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
MOBIL #01-335	647 LOWELL ST	LEXINGTON	GAS STATION	4
MOBIL #01-PEJ	277 BEDFORD ST	LEXINGTON	GAS STATION	4
SHELL SERVICE STATION #137779	46 BEDFORD ST/ WORTHEN RD	LEXINGTON	GAS STATION	5
US EPA REGIONAL LABORATORY	60 WESTVIEW ST	LEXINGTON	INDUSTRIAL	1
VERIZON MASSACHUSETTS 624307	73 WALTHAM ST	LEXINGTON	UTILITIES	2

FOR MORE INFORMATION ON UNDERGROUND STORAGE TANKS, VISIT THE MASSACHUSETTS DEPARTMENT OF FIRE SERVICES WEB SITE: [HTTP://WWW.STATE.MA.US/DFS/UST/USTHOME.HTM](http://www.state.ma.us/dfs/ust/usthome.htm)

NOTE: THIS APPENDIX INCLUDES ONLY THOSE FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA(S) THAT MEET STATE REPORTING REQUIREMENTS AND REPORT TO THE APPROPRIATE AGENCIES. ADDITIONAL FACILITIES LOCATED WITHIN THE WATER SUPPLY PROTECTION AREA(S) SHOULD BE CONSIDERED IN LOCAL DRINKING WATER SOURCE PROTECTION PLANNING.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Burlington Water Supply Protection Areas, and the Shawsheen River Watershed

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0000222	185 Great Rd	Bedford	Oil
3-0000223	Hartwell Rd	Bedford	Oil
3-0000550	180 Great Rd	Bedford	--
3-0000551	181 Great Rd	Bedford	Oil
3-0000588	180 Hartwell Rd	Bedford	Oil and Hazardous Material
3-0001341	205 Burlington Rd	Bedford	Oil
3-0002407	358 Great Rd	Bedford	Oil
3-0002611	Hartwell Rd	Bedford	--
3-0003526	353 Great Rd	Bedford	Oil

RTN	Release Site Address	Town	Contaminant Type
3-0003882	Hartwell Rd	Bedford	Oil
3-0004047	105 Great Rd	Bedford	Oil
3-0004614	200 Spring Rd	Bedford	--
3-0011385	Hanscom Field	Bedford	Oil
3-0011502	Hanscom Afb	Bedford	Oil
3-0013953	200 Hanscom Dr	Bedford	Hazardous Material
3-0017283	4d Crosby Dr	Bedford	Oil
3-0002137	626 Boston Rd	Billerica	Oil
3-0002822	221 Andover Rd	Billerica	--
3-0003010	737 Boston Rd	Billerica	--
3-0006065	7 Summit Rd	Billerica	--
3-0018661	3 Plank St	Billerica	Oil and Hazardous Material
3-0020303	760 Boston Ave	Billerica	Oil
3-0000263	71 Third Ave	Burlington	Oil
3-0000264	63 South Ave	Burlington	Oil
3-0000265	183 Bedford St	Burlington	Oil and Hazardous
3-0000266	70 Blanchard Rd	Burlington	Oil
3-0000267	160 Wheeler Rd (Rte 62)	Burlington	Oil and Hazardous
3-0000268	Middlesex TrnPk	Burlington	Oil
3-0000563	116 Cambridge St	Burlington	--
3-0000586	Northwest Industrial Park	Burlington	Oil and Hazardous Material
3-0000669	30 Blanchard Rd	Burlington	Oil
3-0000909	62 Middlesex TrnPk	Burlington	Hazardous Material
3-0000981	85 South Bedford St	Burlington	Oil and Hazardous Material
3-0001081	118 Cambridge St	Burlington	--
3-0001227	173 Bedford St	Burlington	--
3-0001438	110 Cambridge St	Burlington	--
3-0002218	140 Cambridge St	Burlington	Oil

RTN	Release Site Address	Town	Contaminant Type
3-0003024	1 Kimball Ave	Burlington	Hazardous Material
3-0003309	5 Cypress St	Burlington	Oil
3-0014582	18 A St	Burlington	Hazardous Material
3-0016774	52 Second Ave	Burlington	Hazardous Material
3-0017578	Bedford & Network Dr	Burlington	Oil
3-0018273	111 Cambridge St	Burlington	Oil
3-0018622	61 Thru 63 Middlesex Tnpk	Burlington	Oil
3-0018624	61 Thru 63 Middlesex Tnpk	Burlington	Oil
3-0019203	68 Middlesex Tnpk	Burlington	Hazardous Material
3-0019313	120 Cambridge St	Burlington	Hazardous Material
3-0000786	277 Bedford St	Lexington	--
3-0015167	25 Demar Rd	Lexington	Oil
3-0015930	1575 Massachusetts Ave	Lexington	Oil
3-0017478	39 Bedford St	Lexington	Oil
3-0018056	10 Depot Sq	Lexington	Oil
3-0018519	1707 Mass Ave	Lexington	Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Cambridge Water Department

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Cambridge Water Department
<i>PWS Address</i>	250 Fresh Pond Parkway
<i>City/Town</i>	Cambridge Massachusetts
<i>PWS ID Number</i>	3049000
<i>Local Contact</i>	Chip Norton - Watershed Manager
<i>Phone Number</i>	(617) 349-4781

Introduction

We are all concerned about the quality of the water we drink. Drinking water may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

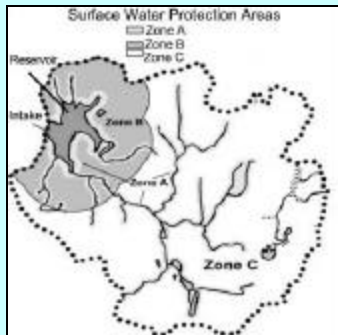
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Section 1: Description of the Water System

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



The water withdrawn from Fresh Pond is filtered, disinfected, pH-adjusted for corrosion control, and fluoridated for dental health. After treatment, the finished water is pumped to the Payson Park Reservoir in Belmont, where it awaits distribution throughout Cambridge.

<i>Source Name</i>	<i>Source ID</i>	<i>Susceptibility</i>
Hobbs Brook Reservoir - Lower	3049000-01S	High
Fresh Pond Reservoir	3049000-02S	High
Stony Brook Reservoir	3049000-03S	High
Hobbs Brook Reservoir - Upper	3049000-04S	High

The Cambridge water system consists of four sources with watersheds in several towns. The Hobbs Brook Upper Reservoir (04S) flows into the Hobbs Brook Lower Reservoir (01S), and is combined with water from the Stony Brook Reservoir (03S), then the combined water flows to the Fresh Pond Reservoir (02S).

The watershed for the Stony Brook Reservoir extends from Weston north into the town of Lincoln. The Hobbs Brook Reservoirs' watersheds include areas of Waltham, Lexington, and Lincoln. The functional watershed for the Fresh Pond Reservoir is now completely within the City of Cambridge, though it originally included areas of Watertown and Belmont. This smaller functional watershed is the result of stormwater drainage modifications that divert street runoff away from the reservoir. Please see the attached maps for more information about the reservoirs and their watersheds.

Glossary Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 2: Land Uses in the Protection Areas

The protection areas for Cambridge are a mixture of residential, commercial, industrial, and forest land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues include:

1. Zone A Land Uses
2. Residential Land Uses
3. Transportation Corridors
4. Hazardous Materials Storage and Use
5. Presence of Oil or Hazardous Material Contamination Sites
6. Aquatic Wildlife
7. Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Zone A Land Uses - The Zone A is the land area within 400 feet of a reservoir and 200 feet of its tributaries. The land uses and activities within the Zone A areas for Cambridge include: transportation corridors, above ground and underground storage tanks, commercial and industrial facilities, recreational activities, and aquatic wildlife. Public water systems are responsible for enforcing the prohibition of certain new or expanded land uses within the Zone A, as detailed in 310 CMR 22.20(b).

Zone A Recommendations:

- ✓ Develop a Management Plan to minimize the impact that visitors will have within the Zone A of Fresh Pond Reservation.
- ✓ Actively monitor new or expanded land uses within the Zone A according to your watershed protocol submitted to DEP.
- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Control stormwater and erosion within the Zone A.
- ✓ Control aquatic wildlife within the Zone A as necessary.
- ✓ Continue to work with local emergency response teams to practice containment of spills within the Zone A.
- ✓ Continue to conduct regular inspections of the Zone A for illegal dumping and spills.
- ✓ Install water supply protection area signs as needed around the Zone A.

2. Residential Land Uses – Approximately 35% of the watersheds consist of residential areas. Some of the areas have public sewers and some use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** - Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.

- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Residential Land Use Recommendations:

- ✓ Work cooperatively with Boards of Health to develop an inventory of septic systems in Lincoln and Weston.
- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Transportation Corridors - Route 128/I-95, Route 2, Route 2A, and Route 20 run through the Zone A areas. Local roads are common throughout the watersheds. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash in to catch basins.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

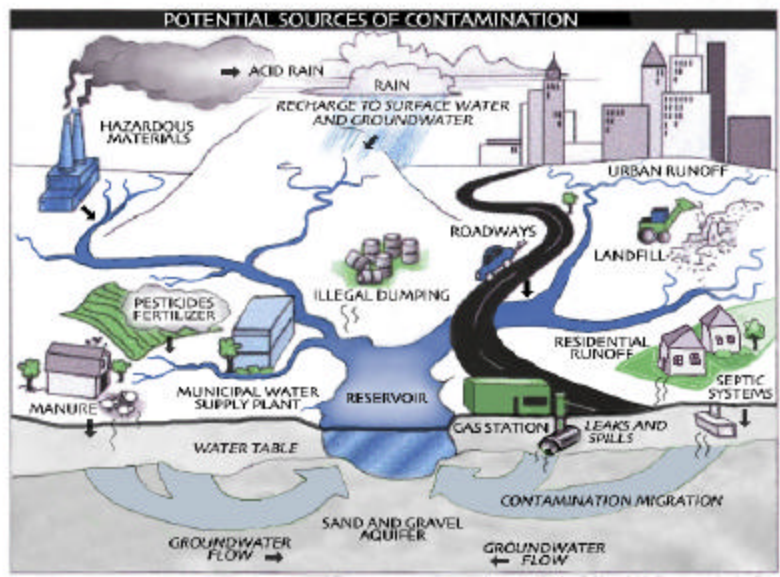


Figure 1: Sample watershed with examples of potential sources of contamination

Railroad tracks run through the water supply protection areas. Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals.

Transportation Corridor Recommendations:

- ✓ Continue to work cooperatively with the Massachusetts Highway Department on a hazardous materials management plan, on a salt use reduction strategy, and on the implementation of structural and maintenance of BMP.
- ✓ Work with the Towns and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Continue to work with local emergency response teams to ensure that any spills within the watersheds can be effectively contained.
- ✓ Review storm drainage maps with emergency response teams. Work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

4. Hazardous Materials Storage and Use – Six percent of the land area within the watersheds is commercial or industrial land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Continue to educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP’s for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.

Source Protection Decreases Risk

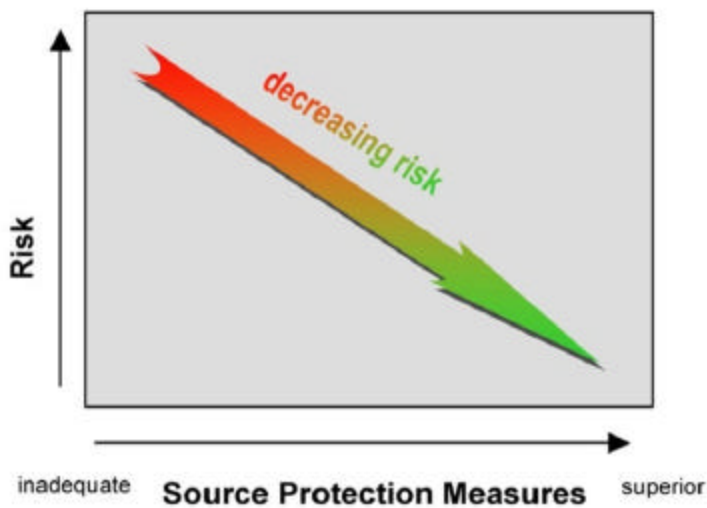


Figure 2: Risk of contamination decreases as source protection increases. This is true for public water systems of any susceptibility ranking, whether High, Moderate, or Low.

- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

5. Presence of Oil or Hazardous Material Contamination Sites

– The watersheds contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 3-0016793, 30002382, 30001320, 30018589, 3-0002920, 3-0010293, 3-0000582, 3-0013311, 30001000, 30001213, 30011633, and 3-0003920. Outside of the functional watershed for Fresh Pond Reservoir, but within the larger natural watershed are the DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as 3-0018094, 3-0000269, 3-0002594, 3-0013222, 30000089, 30015303, 30000959, 3-0019196, 3-0013583, 3-0013797, 3-0016604, and 3-0002177. Refer to the attached map and Appendix 3 for more information.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watersheds

Activities	Quantity	Threat	Source #	Potential Source of Contamination
Agricultural				
Fertilizer Storage or Use	Many	M	02S, 03S, 04S	Fertilizers: leaks, spills, improper handling, or over-application
Livestock Operations	Several	H	03S, 04S	Manure (microbial contaminants): improper handling
Landscaping	Many	M	All	Fertilizers and pesticides: leaks, spills, improper handling, or over-application
Manure Storage or Spreading	Several	H	03S, 04S	Manure (microbial contaminants): improper handling
Nurseries	2	M	04S	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling, or over-application
Pesticide Storage or Use	Many	H	02S, 03S, 04S	Pesticides: leaks, spills, improper handling, or over-application
Commercial				
Auto Repair Shops	Several	M	All	Automotive fluids, vehicle paints and solvents: spills, leaks, or improper handling
Car/Truck/Bus Washes	1	L	03S	Vehicle wash water, soaps, oils, greases, metals, and salts: improper management
Gas Stations/ Service Stations	Several	M	All	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Bus and Truck Terminals	1	M	04S	Fuels and maintenance chemicals: spills, leaks, or improper handling
Golf Courses	2	M	02S, 03S	Fertilizers or pesticides: over-application or improper handling
Junk Yards and Salvage Yards	1	H	03S	Automotive chemicals, wastes, and batteries: spills, leaks, or improper handling
Laundromats	2	L	01S, 04S	Wash water: improper management

Table 2: Land Use in the Watersheds

Activities	Quantity	Threat	Source #	Potential Source of Contamination
Commercial (cont'd)				
Medical Facilities	1	L	01S	Biological, chemical, and radioactive wastes: spills, leaks, or improper handling or storage
Nursing Homes	1	L	01S	Microbial contaminants: improper management
Paint Shops	1	M	04S	Paints, solvents, other chemicals: spills, leaks, or improper handling or storage
Photo Processors	1	M	03S	Photographic chemicals: spills, leaks, or improper handling or storage
Printer and Blueprint Shops	2	M	01S, 03S	Printing inks and chemicals: spills, leaks, or improper handling or storage
Railroad Tracks and Yards	1	H	01S, 03S	Herbicides: over-application or improper handling; fuel storage, transported chemicals, and maintenance chemicals: leaks or spills
Repair Shops (Engine, Appliances, Etc.)	2	M	01S, 02S	Engine fluids, lubricants, and solvents: spills, leaks, or improper handling or storage
Research Laboratories	5	M	01S, 03S	Laboratory chemicals and wastes: spills, leaks, or improper handling or storage
Industrial				
Chemical Manufacture or Storage	1	H	03S	Chemicals and process wastes: spills, leaks, or improper handling or storage
Industry/Industrial Parks	Several	H	01S, 02S, 03S	Industrial chemicals and metals: spills, leaks, or improper handling or storage
Residential				
Fuel Oil Storage (at residences)	Many	M	All	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Many	M	All	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	Many	M	All	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous				
Aquatic Wildlife	Many	H	All	Microbial contaminants
Clandestine Dumping	Frequent	H	All	Debris containing hazardous materials or wastes
Combined Sewer Overflows	Several	H	All	Microbial and non-microbial contaminants including industrial wastewater; improper disposal of hazardous wastes

Table 2: Land Use in the Watersheds

Activities	Quantity	Threat	Source #	Potential Source of Contamination
Miscellaneous				
Composting Facilities	1	M	02S, 03S	Organic material, animal waste, and runoff: storage and improper handling
Landfills and Dumps	1	H	03S	Seepage of leachate (Note - capped landfill)
Road and Maintenance Depots	2	M	03S, 04S	Deicing materials, automotive fluids, fuel storage, and other chemicals: spills, leaks, or improper handling or storage
Schools, Colleges, and Universities	2	M	03S, 04S	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Snow Dumps	Several	M	All	Melt water containing de-icing and other chemicals from roads and parking lots: improper handling
Transportation Corridors	Several	H	All	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling
Underground Storage Tanks	Many	M	All	Stored materials: spills, leaks, or improper handling
Utility Substation Transformers	1	M	04S	Chemicals and other materials including PCBs: spills, leaks, or improper handling
Waste Transfer/ Recycling Stations	1	M	03S	Water contacting waste materials: improper management, seepage, and runoff
Notes:				
<ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

6. Aquatic Wildlife - Birds, particularly gulls, are attracted to large open bodies of water. Birds may increase coliform levels through the release of fecal matter into the water and may carry other bacteria and viruses. Beaver and muskrat may introduce the pathogens Giardia and Cryptosporidium into water through fecal matter. Because of their constant contact with the water, these aquatic mammals represent a potential threat to drinking water reservoirs. Appendix A contains a DEP fact sheet titled *What You Need To Know About Microbial Contamination*.

Aquatic Wildlife Recommendations:

- ✓ Monitor wildlife populations in and around reservoirs.
- ✓ Where necessary, discourage and control aquatic wildlife. See <http://mass.gov/dep/brp/dws/protect.htm> for guidance and permits.

7. Protection Planning - Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the watershed towns do not have water supply protection controls that meet DEP's Surface Water Protection regulations 310 CMR 22.20 (b) and (c). A Surface Water Supply Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply reservoirs.

Protection Planning Recommendations:

- ✓ Complete the City's Surface Water Supply Protection Plan. Refer your protection team to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Surface Water Supply Protection Plan".
- ✓ Encourage watershed towns to adopt controls that meet 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ Continue to work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the towns, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Protection areas that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Cambridge Water Department is commended for taking an active role in promoting source protection measures through:

- Working cooperatively with watershed towns on emergency response and stormwater management.
- Placing spill kits at strategic points within the watersheds.
- Actively monitoring source water quality throughout the watersheds and using the data to target source protection.
- Working cooperatively with businesses within the watersheds to encourage source protection.
- Adopting the Fresh Pond Master Plan, which includes long term source protection measures.
- Dedicating staff resources to inspections, public education, and coordinating source protection efforts.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Is the Zone A posted with “Public Drinking Water Supply” Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone A?	NO	Continue monitoring non-water supply activities in Zone As.
Are Zone A storm drain locations identified?	YES	Continue to work with local emergency response teams and businesses on Zone A storm drainage.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Do the watershed communities have Surface Water Protection Controls that meet 310 CMR 22.20C?	NO	Work with neighboring municipalities to include the watershed in their protection controls. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws, health regulations, and current regulations.
Planning		
Does the PWS have a local surface water supply protection plan?	NO	Complete your surface water supply protection plan in 2003. Follow “Developing a Local Surface Water Supply Protection Plan” available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal “Emergency Response Plan” to deal with spills or other emergencies?	YES	Supplement plan by developing joint emergency response plans with fire departments, Boards of Health, DPWs, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	YES	Reactivate committees; include representatives from citizens’ groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES/NO	In Cambridge, yes. Encourage watershed communities to inspect commercial and industrial facilities, especially those that may have floor drains that do not lead to sanitary sewers or tight tanks. For more guidance see “Hazardous Materials Management: A Community’s Guide” at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	YES	Aim additional efforts at commercial, industrial and municipal uses within the watershed.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Develop and implement a Surface Water Supply Protection Plan.
- ✓ Work cooperatively with Boards of Health to develop an inventory of septic systems in Lincoln and Weston.
- ✓ Work with businesses and others who have landscaped areas in the watersheds to encourage BMPs for the use of fertilizer and pesticide.
- ✓ Continue to partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure cooperation on responding to spills or accidents.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Continue to inspect the Zone A areas regularly, and when feasible, remove prohibited non-water supply activities.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Source Protection Grant Program provides funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response (RFR) for the grant program.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watershed. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier and town boards.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN CAMBRIDGE WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
337567	LORDS CLEANERS	155 BELMONT ST.	BELMONT	HANDLR	VERY SMALL QUANTITY GENERATOR
337567	LORDS CLEANERS	155 BELMONT ST.	BELMONT	PLANT	BELOW AQ REGULATED THRESHOLDS
295101	NANOR PRINTS INC	279 BELMONT ST.	BELMONT	DISCH	MWRA SEWER CONNECTION
31208	PROSPECT AUTO BODY INC	259 BELMONT ST.	BELMONT	HANDLR	VERY SMALL QUANTITY GENERATOR
209185	A AND E SERVICE STATION INC	199 CONCORD AVE.	CAMBRIDGE	FULDSP	FUEL DISPENSER STAGEII
297033	ADAPTIVE OPTICS ASSOCIATES	54 SMITH PL.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
32734	BOLT BERANEK & NEWMAN INC	10 MOULTON ST.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
35519	CAMBRIDGE WATER DEPARTMENT	250 FRESH POND PKWY	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
35519	CAMBRIDGE WATER DEPT CITY OF	250 FRESH POND PKWY	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
291291	CAMBRIDGE WATER PURIFICATION PLANT	250 FRESH POND PKWY	CAMBRIDGE	SURFAC	SURFACEWATER MAJOR
216549	COMPLETE PHOTO SERVICE INC	703 MOUNT AUBURN ST.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
27359	COMSTOCK & WESCOTT INC	765 CONCORD AVE.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
320671	CURIS INC	61 MOULTON ST.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
320671	CURIS INC	61 MOULTON ST.	CAMBRIDGE	HANDLR	SMALL QUANTITY GENERATOR
292784	CURIS INC	45 MOULTON ST.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
325887	CVS #1022	211 ALEWIFE BROOK PKWY	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
338532	DIAGNOSTIC CENTER THE	575 MOUTN AUBURN ST.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
356137	E INK CORPORATION	733 CONCORD AVE.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
30134	EURAUTO SPORTS CENTER INC	57 NEW ST.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
282182	EUROPEAN COLLISION CENTER	45 NEW ST.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
209463	FRESH POND GAS	480 CONCORD AVE.	CAMBRIDGE	FULDSP	FUEL DISPENSER STAGEII
209463	FRESH POND GAS	480 CONCORD AVE.	CAMBRIDGE	HANDLR	NON-NOTIFIER HW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
136286	FRESH POND GULF SERVICE CENTER	260 LEXINGTON AVE.	CAMBRIDGE	FULDSP	FUEL DISPENSER STAGEII
308183	GENETICS INSTITUTE LLC	735 CONCORD AVE.	CAMBRIDGE	HANDLR	SMALL QUANTITY GENERATOR
308183	GENETICS INSTITUTE LLC	735 CONCORD AVE.	CAMBRIDGE	HANDLR	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
308183	GENETICS INSTITUTE LLC	735 CONCORD AVE.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
308183	GENETICS INSTITUTE LLC	735 CONCORD AVE.	CAMBRIDGE	HANDLR	SMALL QUANTITY GENERATOR
326701	GEOCHRON LABORATORIES	711 CONCORD AVE.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
265931	HARVARD UNIVERSITY OBSERVATORY	160 CONCORD AVE.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
265931	HARVARD UNIVERSITY OBSERVATORY	160 CONCORD AVE.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
320616	HI TECH AUTO BODY INC	51 NEW ST.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
130980	HYPERION CATALYSIS INTERNATIONAL INC	40 SMITH PL.	CAMBRIDGE	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
130980	HYPERION CATALYSIS INTERNATIONAL INC	38 SMITH ST.	CAMBRIDGE	TURRPT	LARGE QUANTITY TOXIC USER
130980	HYPERION CATALYSIS INTERNATIONAL INC	38 SMITH PL.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
309505	INFIMED INC	767C CONCORD AVE., SUITE 100	CAMBRIDGE	HANDLR	SMALL QUANTITY GENERATOR
309505	INFIMED INC	767C CONCORD AVE.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
309505	INFIMED INC	767C CONCORD AVE., SUITE 100	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
283539	KRUEGER ENTERPRISES INC	711 CONCORD AVE.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
335507	MICROCHIPS INC	45 SPINELLI WAY	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
335507	MICROCHIPS INC	45 SPINELLI WAY	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
367516	MOBIL 13208	343 FRESH POND PKWY	CAMBRIDGE	FULDSP	FUEL DISPENSER STAGEII
178046	MOBIL OIL CORP SS 175	343 FRESH POND PKWY	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
178046	MOBIL OIL CORP SS 175	343 FRESH POND PKWY	CAMBRIDGE	HANDLR	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
338491	NEW OBJECTIVE INC	763 D CONCORD AVE.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
338069	NOVIRIO PHARMACEUTICALS INC	763E CONCORD AVE.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
338069	NOVIRIO PHARMACEUTICALS INC	763E CONCORD AVE.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
205788	OMNIGENE BIOPRODUCTS INC	763D CONCORD AVE.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
205788	OMNIGENE BIOPRODUCTS INC	763D CONCORD AVE.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
287349	PANGAEA PHARMACEUTICALS	763 EAST CONCORD ST.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
360890	PARALLEL SOLUTIONS INC	763D CONCORD AVE.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
360890	PARALLEL SOLUTIONS INC	763D CONCORD AVE.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
36143	PROTEIN ENGINEERING CORP	765 CONCORD AVE.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
51903	SANCTA MARIA NURSING FACILITY	799 CONCORD AVE.	CAMBRIDGE	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
338512	SCHATZKI ASSOCIATES INC	725 CONCORD AVE.	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
325388	SHELL 137725	603 CONCORD AVE.	CAMBRIDGE	FULDSP	FUEL DISPENSER STAGEII
126697	SUNOCO #0014-2877	515 CONCORD AVE.	CAMBRIDGE	FULDSP	FUEL DISPENSER STAGEII
326418	TRANS KARYOTIC THERAPIES	205 ALEWIFE BROOK PKWY	CAMBRIDGE	HANDLR	SMALL QUANTITY GENERATOR
326418	TRANS KARYOTIC THERAPIES INC	205 ALEWIFE BROOK PKWY	CAMBRIDGE	DISCH	MWRA SEWER CONNECTION
33089	VERIZON NEW ENGLAND INC	75 SMITH PL.	CAMBRIDGE	HANDLR	VERY SMALL QUANTITY GENERATOR
375112	128 LEXINGTON GAS	690 MARRETT RD.	LEXINGTON	FULDSP	FUEL DISPENSER STAGEII
375112	128 LEXINGTON GAS DBA	690 MARRETT RD.	LEXINGTON	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
375804	AURIGENE DISCOVERY TECHNOLOGIES INC	99 HAYDEN AVE.	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
375804	AURIGENE DISCOVERY TECHNOLOGIES INC	99 HAYDEN AVE.	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
375804	AURIGENE DISCOVERY TECHNOLOGIES INC	99 HAYDEN AVE.	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
375804	AURIGENE DISCOVERY TECHNOLOGIES INC	99 HAYDEN AVE.	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
343656	BAE SYSTEMS IEWS	2 FORBES RD.	LEXINGTON	TURRPT	LARGE QUANTITY TOXIC USER
343656	BAE SYSTEMS INFORMATION & ELECTRONIC SYS	2 FORBES RD.	LEXINGTON	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
343656	BAE SYSTEMS INFORMATION & ELECTRONIC SYS	2 FORBES RD.	LEXINGTON	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
343656	BAE SYSTEMS INFORMATION & ELECTRONIC SYS	2 FORBES RD.	LEXINGTON	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
343656	BAE SYSTEMS INFORMATION & ELECTRONIC SYS	2 FORBES RD.	LEXINGTON	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
343656	BAE SYSTEMS INFORMATION & ELECTRONIC SYS	2 FORBES RD.	LEXINGTON	PLANT	AQ SYNTHETIC MINOR W/RESTR PTE < OR = 25% OF MAJ
343656	BAE SYSTEMS INFORMATION & ELECTRONIC SYS	2 FORBES RD.	LEXINGTON	DISCH	MWRA SEWER CONNECTION
334052	CIRCE BIOMEDICAL INC	99 HAYDEN AVE.	LEXINGTON	DISCH	MWRA SEWER CONNECTION
334052	CIRCE BIOMEDICAL INC	99 HAYDEN AVE.	LEXINGTON	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
29171	COLLABORATIVE RESEARCH INC	128 SPRING ST.	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
130974	LEDGEMONT RESEARCH PARK ASSOCIATES	128 SPRING ST.	LEXINGTON	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
246198	LEXINGTON FAMILY CHIROPRACTIC	120 R SCHOOL ST.	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
32699	MA DEPARTMENT OF PUBLIC WORKS	RTE 2A	LEXINGTON	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
32699	MA DEPARTMENT OF PUBLIC WORKS	RTE 2A	LEXINGTON	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
32699	MA DEPARTMENT OF PUBLIC WORKS	RTE 2A	LEXINGTON	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
32699	MA DEPARTMENT OF PUBLIC WORKS	RTE 2A	LEXINGTON	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
30796	MINUTEMAN REG VOC TECH SCH DIST	758 MARRETT RD.	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
34099	MINUTEMAN TOOL REPAIR INC	12 BICENTENNIAL DR.	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
317348	PHYLOS INC	128 SPRING ST.	LEXINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
317348	PHYLOS INC	128 SPRING ST.	LEXINGTON	DISCH	MWRA SEWER CONNECTION
130977	RAYTHEON COMPANY	141 SPRING ST.	LEXINGTON	FULDSP	FUEL DISPENSER STAGEII
177004	RAYTHEON COMPANY	131 SPRING ST.	LEXINGTON	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
177004	RAYTHEON COMPANY	131 SPRING ST.	LEXINGTON	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
130977	RAYTHEON COMPANY EXECUTIVE OFFICES	141 SPRING ST.	LEXINGTON	PLANT	RES APPLICATION APPROVED
135839	DOHERTYS GARAGE INC	161 LINCOLN RD.	LINCOLN	FULDSP	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
39960	LINCOLN TRANSFER STATION	RTE 2A/MILL ST.	LINCOLN	TRSTN	SMALL TRANSFER STATION
246226	LINCOLN WOODS COOPERATIVE HOUSING	50 WELLS RD.	LINCOLN	GROUND	GROUNDWATER MINOR
286229	PUBLIC SAFETY COMPLEX	169 LINCOLN RD.	LINCOLN	APPR	INDUSTRIAL SEWER WASTE WATER
135840	TRACEYS SERVICE STATION INC	131 CAMBRIDGE TURNPIKE	LINCOLN	FULDSP	FUEL DISPENSER
117679	ACTRONICS INCORPORATED	166 BEAR HILL RD.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
117679	ACTRONICS INCORPORATED	166 BEAR HILL RD.	WALTHAM	DISCH	MWRA SEWER CONNECTION
334824	AFFILIATED BUILDING SERVICES INC	1265 MAIN ST. W7	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
334824	AFFILIATED BUILDING SERVICES INC	1265 MAIN ST. W7	WALTHAM	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
334824	AFFILIATED BUILDING SERVICES INC	1265 MAIN ST. W7	WALTHAM	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
334824	AFFILIATED BUILDING SERVICES INC	1265 MAIN ST. W7	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
251747	AIRBORNE RESEARCH	260 BEAR HILL RD.	WALTHAM	PLANT	BELOW AQ REGULATED THRESHOLDS
251747	AIRBORNE RESEARCH	269 BEAR HILL RD.	WALTHAM	HANDLR	BELOW HW REGULATED THRESHOLDS
251747	AIRBORNE RESEARCH	260 BEAR HILL RD.	WALTHAM	TURRPT	BELOW TUR REGULATED THRESHOLDS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
251747	AIRBORNE RESEARCH	260 BEAR HILL RD.	WALTHAM	DISCH	BELOW IWW REGULATED THRESHOLDS
282234	AIRFLOW RESEARCH AND MANUFACTURING CORP	101 FIRST AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
314123	ALGONQUIN GAS TRANSMISSIONCO VALVE J11A	686 LINCOLN ST.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
319432	ALTHEXIS COMPANY INC THE	1365 MAIN ST.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
319432	ALTHEXIS COMPANY INC THE	1365 MAIN ST.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
319432	ALTHEXIS COMPANY INC THE	1365 MAIN ST.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
319432	ALTHEXIS COMPANY INC THE	1365 MAIN ST.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
319432	ALTHEXIS COMPANY INC THE	1365 MAIN ST.	WALTHAM	DISCH	MWRA SEWER CONNECTION
319432	ALTHEXIS COMPANY INC THE	1365 MAIN ST.	WALTHAM	DISCH	MWRA SEWER CONNECTION
305434	ASTRAZENECA PHARMACEUTICALS LP	35 GATEHOUSE DR.	WALTHAM	PLANT	AQ SYNTHETIC MINOR W/RESTR BUT <OR= 50% OF MAJ
305434	ASTRAZENECA PHARMACEUTICALS LP	35 GATEHOUSE DR.	WALTHAM	DISCH	MWRA SEWER CONNECTION
305434	ASTRAZENECA PHARMACEUTICALS LP	35 GATEHOUSE DR.	WALTHAM	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
251754	AURORA TECH	167 SECOND AVE.	WALTHAM	PLANT	BELOW AQ REGULATED THRESHOLDS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
251754	AURORA TECH	176 SECOND AVE.	WALTHAM	HANDLR	BELOW HW REGULATED THRESHOLDS
251754	AURORA TECH	176 SECOND AVE.	WALTHAM	TURRPT	BELOW TUR REGULATED THRESHOLDS
251754	AURORA TECH	176 SECOND AVE.	WALTHAM	DISCH	BELOW IWW REGULATED THRESHOLDS
251761	BAY STATE FLORIST	285 BEAR HILL RD.	WALTHAM	PLANT	BELOW AQ REGULATED THRESHOLDS
251761	BAY STATE FLORIST	285 BEAR HILL RD.	WALTHAM	DISCH	BELOW IWW REGULATED THRESHOLDS
251761	BAY STATE FLORIST	285 BEAR HILL RD.	WALTHAM	HANDLR	BELOW HW REGULATED THRESHOLDS
251761	BAY STATE FLORIST	285 BEAR HILL RD.	WALTHAM	TURRPT	BELOW TUR REGULATED THRESHOLDS
26830	BERGERON CO INC	1474 MAIN ST.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
360759	BEYOND GENOMICS	40 BEAR HILL RD.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
360759	BEYOND GENOMICS	40 BEAR HILL RD.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
360759	BEYOND GENOMICS	40 BEAR HILL RD.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
360759	BEYOND GENOMICS	40 BEAR HILL RD.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
282399	BIO MEDICAL APPLICATIONS OF WALTHAM	1254 MAIN ST.	WALTHAM	DISCH	MWRA SEWER CONNECTION

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
332042	BOSTON PROPERTIES	50 JONES RD.	WALTHAM	SURFAC	SURFACEWATER MAJOR
318655	BOSTON PROPERTIES LIMITED PARTNERSHIP	1601 TRAPELO RD.	WALTHAM	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
32483	CAMBEX CORP	360 SECOND AVE.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
133517	CENTERLESS GRINDING CO INC	25 JONES RD.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
136352	CLAUDES SERVICE STATION INC	1420 MAIN ST.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
33467	COCA COLA	80 SECOND AVE.	WALTHAM	PLANT	AQ NATURAL MINOR W/ PTE<MAJ & >50% OF MAJ
33467	COCA COLA BOTTLING CO OF NEW ENGLAND	80 SECOND AVE.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
337849	CONFLUENT SURGICAL INC	101A FIRST AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
295728	COSTCO WHOLESALE # 308	520 WINTER ST.	WALTHAM	DISCH	MWRA SEWER CONNECTION
295728	COSTCO WHOLESALE # 308	520 WINTER ST.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
295728	COSTCO WHOLESALE # 308	520 WINTER ST.	WALTHAM	DISCH	MWRA SEWER CONNECTION
295728	COSTCO WHOLESALE # 308	520 WINTER ST.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
339946	CTC COMMUNICATIONS CORPORATION	115 SECOND AVE.	WALTHAM	PLANT	AQ SYNTHETIC MINOR W/RESTR BUT <OR= 50% OF MAJ

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
207307	CTI CRYOGENICS	266 2ND AVE.	WALTHAM	TURRPT	BELOW TUR REGULATED THRESHOLDS
316226	DATA ASSOCIATES INC	280 BEAR HILL RD.	WALTHAM	DISCH	MWRA SEWER CONNECTION
30341	DICK A B	130 THIRD AVE.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131799	EASTERN REPRODUCTION	1250 MAIN ST.	WALTHAM	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131799	EASTERN REPRODUCTION	1250 MAIN ST.	WALTHAM	DISCH	MWRA SEWER CONNECTION
131799	EASTERN REPRODUCTION CORPORATION	1250 MAIN ST.	WALTHAM	TURRPT	LARGE QUANTITY TOXIC USER
359834	ENGINEOS INC	40 BEAR HILL RD.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
377340	EUGENE OS BIOSYSTEMS INC	1365 MAIN ST.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
333919	EXODUS COMMUNICATION	580 WINTER ST.	WALTHAM	PLANT	AQ SYNTHETIC MINOR W/RESTR PTE < OR = 25% OF MAJ
367872	EXXONMOBIL OIL CORP	1335 MAIN ST.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
367872	EXXONMOBIL OIL CORP	1335 MAIN ST.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
367872	EXXONMOBIL OIL CORP	1335 MAIN ST.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
367872	EXXONMOBIL OIL CORP	1335 MAIN ST.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
327443	FIRE CONTROL INSTRUMENTS	301 SECOND AVE.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
270937	FOSTER MILLER	195 BEAR HILL RD.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
28475	FOSTER MILLER	360 SECOND AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
28475	FOSTER MILLER INC	350 SECOND AVE.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
28475	FOSTER MILLER INC	332 350 358 360 SECOND AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
28475	FOSTER MILLER INC	195 BEAR HILL RD.	WALTHAM	DISCH	MWRA SEWER CONNECTION
270937	FOSTER MILLER INC	195 BEAR HILL RD.	WALTHAM	DISCH	MWRA SEWER CONNECTION
283333	FOSTER MILLER INC	303 BEAR HILL RD.	WALTHAM	DISCH	MWRA SEWER CONNECTION
283333	FOSTER MILLER INC	303 BEAR HILL RD.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
321234	FRASCO PRINTING INC	160 BEAR HILL RD.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
321234	FRASCO PRINTING INC	160 BEAR HILL RD.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
329009	GELTEX PHARMACEUTICALS INC	153 SECOND AVE.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
329009	GELTEX PHARMACEUTICALS INC	153 SECOND AVE.	WALTHAM	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
329009	GELTEX PHARMACEUTICALS INC	153 SECOND AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
53349	HARDRIC LABORATORIES INC	1490 MAIN ST.	WALTHAM	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
323158	HEMP HILL DRILLING & BLASTING	50 BEAR HILL RD.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
52883	HOBBS BROOK OFFICE	255 WYMAN ST.	WALTHAM	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
298501	HOMESTEAD VILLAGE GUEST STUDIOS	52 FOURTH AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
289785	HYSTER NEW ENGLAND INC	358 SECOND AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
30235	I P L SYSTEMS INC	360 SECOND AVE.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
204625	IMMULOGIC PHARM CORP	610 LINCOLN ST.	WALTHAM	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
204625	IMMULOGIC PHARMACEUTICAL CORP	610 LINCOLN ST.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
204625	IMMULOGIC PHARMACEUTICAL CORP	610 LINCOLN ST.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
204625	IMMULOGIC PHARMACEUTICAL CORP	610 LINCOLN ST.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
204625	IMMULOGIC PHARMACEUTICAL CORP	610 LINCOLN ST.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
204625	IMMULOGIC PHARMACEUTICAL CORPORATIONS	610 LINCOLN ST.	WALTHAM	DISCH	MWRA SEWER CONNECTION

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
251633	INTERFLUX	230 SECOND AVE.	WALTHAM	PLANT	BELOW AQ REGULATED THRESHOLDS
251633	INTERFLUX	230 SECOND AVE.	WALTHAM	HANDLR	BELOW HW REGULATED THRESHOLDS
251633	INTERFLUX	230 SECOND AVE.	WALTHAM	TURRPT	BELOW TUR REGULATED THRESHOLDS
251633	INTERFLUX	230 SECOND AVE.	WALTHAM	DISCH	BELOW IWW REGULATED THRESHOLDS
283560	KWIK KOPY PRINTING	292 SECOND AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
283560	KWIK KOPY PRINTING	292 SECOND AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
283560	KWIK KOPY PRINTING 426	292 SECOND AVE.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
283560	KWIK KOPY PRINTING 426	292 SECOND AVE.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
295139	LERNER PROCESSING	211 SECOND AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
215026	M A COM OMNI SPECTRA INC	84 FOURTH AVE.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
338261	MASSACHUSETTS GENERAL IMAGING WALTHAM	40 SECOND AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
327305	MASSACHUSETTS MEDICAL SOCIETY	860 WINTER ST.	WALTHAM	DISCH	MWRA SEWER CONNECTION
360160	MATRIX TECHNOLOGIES CORP	303 BEAR HILL RD.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
251702	MICROS SYSTEMS	335 BEAR HILL RD.	WALTHAM	PLANT	BELOW AQ REGULATED THRESHOLDS
251702	MICROS SYSTEMS	335 BEAR HILL RD.	WALTHAM	DISCH	BELOW IWW REGULATED THRESHOLDS
251702	MICROS SYSTEMS	335 BEAR HILL RD.	WALTHAM	TURRPT	BELOW TUR REGULATED THRESHOLDS
251702	MICROS SYSTEMS	335 BEAR HILL RD.	WALTHAM	HANDLR	BELOW HW REGULATED THRESHOLDS
367872	MOBIL 10238	1335 MAIN ST.	WALTHAM	FULDSP	FUEL DISPENSER STAGEII
330395	MOSAIC TECHNOLOGIES	303 BEAR HILL RD.	WALTHAM	DISCH	MWRA SEWER CONNECTION
228869	MULTISOURCE TECH CORP	20 FOX RD.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
376355	POLAROID CORP DBA	850 - 920 WINTER ST.	WALTHAM	TURRPT	LARGE QUANTITY TOXIC USER
376355	POLAROID CORP DBA	850 - 920 WINTER ST.	WALTHAM	PLANT	RES APPLICATION APPROVED
376355	POLAROID CORP DBA	850 - 920 WINTER ST.	WALTHAM	PLANT	RES OR SYNTHETIC MINOR W/ PTE <MAJ & >80% OF MAJ
376355	POLAROID CORP DBA	850 - 920 WINTER ST.	WALTHAM	PLANT	RES APPLICATION APPROVED
376355	POLAROID CORP DBA	850 - 920 WINTER ST.	WALTHAM	PLANT	RES OR SYNTHETIC MINOR W/ PTE <MAJ & >80% OF MAJ
376355	POLAROID CORP DBA	850 - 920 WINTER ST.	WALTHAM	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
376678	POLAROID CORP DBA	1265 MAIN ST.	WALTHAM	DISCH	MWRA SEWER CONNECTION
376678	POLAROID CORP DBA	1265 MAIN ST.	WALTHAM	PLANT	FY94 AQ OPERATING PERMIT FEE BETWEEN \$8000-\$8999
376678	POLAROID CORP DBA	1265 MAIN ST.	WALTHAM	TURRPT	LARGE QUANTITY TOXIC USER
376678	POLAROID CORP DBA	1265 MAIN ST.	WALTHAM	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
376355	POLAROID CORP DBA	850 - 920 WINTER ST.	WALTHAM	DISCH	MWRA SEWER CONNECTION
374359	PRAECIS PHARMACEUTICALS	830 WINTER ST.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
374359	PRAECIS PHARMACEUTICALS	830 WINTER ST.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
374359	PRAECIS PHARMACEUTICALS	830 WINTER ST.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
374359	PRAECIS PHARMACEUTICALS	830 WINTER ST.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
338821	SIERRA SUITES HOTEL	32 FOURTH AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
274787	SUMMERFIELD SUITES HOTEL	54 FOURTH AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
251692	SURGI CARE	150 BEAR HILL RD.	WALTHAM	PLANT	BELOW AQ REGULATED THRESHOLDS
251692	SURGI CARE	150 BEAR HILL RD.	WALTHAM	TURRPT	BELOW TUR REGULATED THRESHOLDS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
251692	SURGI CARE	150 BEAR HILL RD.	WALTHAM	HANDLR	BELOW HW REGULATED THRESHOLDS
251692	SURGI CARE	150 BEAR HILL RD.	WALTHAM	DISCH	BELOW IWW REGULATED THRESHOLDS
251710	SURGI MEDIX	150 BEAR HILL RD.	WALTHAM	PLANT	BELOW AQ REGULATED THRESHOLDS
251710	SURGI MEDIX	150 BEAR HILL RD.	WALTHAM	TURRPT	BELOW TUR REGULATED THRESHOLDS
251710	SURGI MEDIX	150 BEAR HILL RD.	WALTHAM	HANDLR	BELOW HW REGULATED THRESHOLDS
251710	SURGI MEDIX	150 BEAR HILL RD.	WALTHAM	DISCH	BELOW IWW REGULATED THRESHOLDS
338799	SYNTONIX PHARMACEUTICALS INC	9 FOURTH AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
34070	T R W CUSTOMER SERVICE DIV	290 SECOND AVE.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
270935	TECOGEN	45 FIRST AVE.	WALTHAM	PLANT	AQ SYNTHETIC MINOR W/RESTR PTE < OR = 25% OF MAJ
270935	TECOGEN INC	45 FIRST AVE.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
270935	TECOGEN INC	45 FIRST AVE.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
270935	TECOGEN INC	45 FIRST AVE.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
270935	TECOGEN INC	45 FIRST AVE.	WALTHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
285783	THERMO ELECTRON CORPORATION	89 FIRST AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
319679	TYCO ELECTRONICS CORP	1370 MAIN ST.	WALTHAM	PLANT	AQ SYNTHETIC MINOR W/RESTR PTE < OR = 25% OF MAJ
319679	TYCO ELECTRONICS CORP	1370 MAIN ST.	WALTHAM	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
319679	TYCO ELECTRONICS CORP	1370 MAIN ST.	WALTHAM	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
319685	TYCO ELECTRONICS CORP	140 FOURTH AVE.	WALTHAM	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
319685	TYCO ELECTRONICS CORP	140 FOURTH AVE.	WALTHAM	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
319685	TYCO ELECTRONICS CORP	140 FOURTH AVE.	WALTHAM	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
319685	TYCO ELECTRONICS CORP	140 FOURTH AVE.	WALTHAM	TURRPT	LARGE QUANTITY TOXIC USER
319685	TYCO ELECTRONICS CORP	140 FOURTH AVE.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
319685	TYCO ELECTRONICS CORP	140 FOURTH AVE.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
319685	TYCO ELECTRONICS CORP	140 FOURTH AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
319679	TYCO ELECTRONICS CORP	1370 MAIN ST.	WALTHAM	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
319679	TYCO ELECTRONICS CORP	1370 MAIN ST.	WALTHAM	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
319679	TYCO ELECTRONICS CORPORATION	1370 MAIN ST.	WALTHAM	DISCH	MWRA SEWER CONNECTION
251716	UNISYS CORPORATION	335 BEAR HILL RD.	WALTHAM	PLANT	BELOW AQ REGULATED THRESHOLDS
251716	UNISYS CORPORATION	335 BEAR HILL RD.	WALTHAM	DISCH	BELOW IWW REGULATED THRESHOLDS
251716	UNISYS CORPORATION	335 BEAR HILL RD.	WALTHAM	HANDLR	BELOW HW REGULATED THRESHOLDS
251716	UNISYS CORPORATION	335 BEAR HILL RD.	WALTHAM	TURRPT	BELOW TUR REGULATED THRESHOLDS
130355	VERIZON LABORATORIES INC	40 SYLVAN RD.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
130355	VERIZON LABORATORIES INC	40 SYLVAN RD.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
130355	VERIZON LABORATORIES INC	40 SYLVAN RD.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
130355	VERIZON LABORATORIES INC	40 SYLVAN RD.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
130355	VERIZON LABORATORIES INC	40 SYLVAN RD.	WALTHAM	PLANT	AQ SYNTHETIC MINOR W/RESTR BUT <OR= 50% OF MAJ
130355	VERIZON LABORATORIES INCORPORATED	40 SYLVAN RD.	WALTHAM	DISCH	MWRA SEWER CONNECTION
309545	WALGREENS #3251	1521 MAIN ST.	WALTHAM	DISCH	MWRA SEWER CONNECTION
309545	WALGREENS #3251	15-21 MAIN ST.	WALTHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
309545	WALGREENS #3251	1521 MAIN ST.	WALTHAM	DISCH	MWRA SEWER CONNECTION
52684	WESTON HOTEL	70 THIRD AVE.	WALTHAM	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
327699	THE WESTON HOTEL	70 THIRD AVE.	WALTHAM	DISCH	MWRA SEWER CONNECTION
318657	CENTER STREET SAS LLC	21 CENTER ST.	WESTON	GROUND	GROUNDWATER MINOR
326322	JERICHO VILLAGE APARTMENTS	JERICHO RD.	WESTON	GROUND	GROUNDWATER MAJOR
367882	EXXONMOBIL OIL CORP	88 BOSTON POST RD.	WESTON	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
367882	EXXONMOBIL OIL CORP	88 BOSTON POST RD.	WESTON	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
367882	EXXONMOBIL OIL CORP	88 BOSTON POST RD.	WESTON	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
367882	EXXONMOBIL OIL CORP	88 BOSTON POST RD.	WESTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
367882	EXXONMOBIL OIL CORP	88 BOSTON POST RD.	WESTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
326322	JERICHO VILLAGE APARTMENTS	JERICHO RD.	WESTON	GROUND	GROUNDWATER MAJOR
367882	MOBIL 12104	88 BOSTON POST RD.	WESTON	FULDSP	FUEL DISPENSER STAGEII
117425	NOBB HILL PRESS INC	474 BOSTON POST RD.	WESTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
117425	NOBB HILL PRESS INC	474 BOSTON POST RD.	WESTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
116753	PRIME NATIONAL PUBLISHING CORP	470 BOSTON POST RD.	WESTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
39976	WESTON TRANSFER STATION	CHURCH ST.	WESTON	TRSTN	SMALL TRANSFER STATION
334997	WESTON VETERINARY CLINIC	152 BOSTON POST RD.	WESTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE

UNDERGROUND STORAGE TANKS WITHIN CAMBRIDGE WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
A & E SERVICE STATION	199 CONCORD AVE.	CAMBRIDGE	GAS STATION	10000	GASOLINE
A & E SERVICE STATION	199 CONCORD AVE.	CAMBRIDGE	GAS STATION	10000	GASOLINE
A & E SERVICE STATION	199 CONCORD AVE.	CAMBRIDGE	GAS STATION	10000	DIESEL
FRESH POND GAS	480 CONCORD AVE.	CAMBRIDGE	GAS STATION	8000	GASOLINE
FRESH POND GAS	480 CONCORD AVE.	CAMBRIDGE	GAS STATION	8000	GASOLINE
FRESH POND GAS	480 CONCORD AVE.	CAMBRIDGE	GAS STATION	8000	GASOLINE
FRESH POND GULF	260 LEXINGTON AVE.	CAMBRIDGE	GAS STATION	5000	GASOLINE
FRESH POND GULF	260 LEXINGTON AVE.	CAMBRIDGE	GAS STATION	5000	GASOLINE
FRESH POND GULF	260 LEXINGTON AVE.	CAMBRIDGE	GAS STATION	5000	GASOLINE
MOBIL OIL	343 FRESH POND PKWY	CAMBRIDGE	GAS STATION	12000	GASOLINE
MOBIL OIL	343 FRESH POND PKWY	CAMBRIDGE	GAS STATION	10000	GASOLINE
MOBIL OIL	343 FRESH POND PKWY	CAMBRIDGE	GAS STATION	10000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
MOBIL OIL	343 FRESH POND PKWY	CAMBRIDGE	GAS STATION	1000	WASTE OIL
MT AUBURN AUTO SERVICE INC	605 MOUNT AUBURN ST.	CAMBRIDGE	GAS STATION	8000	GASOLINE
MT AUBURN AUTO SERVICE	605 MOUNT AUBURN ST.	CAMBRIDGE	GAS STATION	8000	GASOLINE
NICK'S SERVICE STATION	587 MOUNT AUBURN ST.	CAMBRIDGE	GAS STATION	12000	GASOLINE
NICK'S SERVICE STATION	587 MOUNT AUBURN ST.	CAMBRIDGE	GAS STATION	10000	GASOLINE
NICK'S SERVICE STATION	587 MOUNT AUBURN ST.	CAMBRIDGE	GAS STATION	500	WASTE OIL
SANCTA MARIA NURSING FACILITY	799 CONCORD AVE.	CAMBRIDGE	NURSING HOME	1500	DIESEL
SHELL SERVICE STATION	603 CONCORD AVE.	CAMBRIDGE	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	603 CONCORD AVE.	CAMBRIDGE	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	603 CONCORD AVE.	CAMBRIDGE	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	603 CONCORD AVE.	CAMBRIDGE	GAS STATION	500	FUEL OIL
SUNOCO	515 CONCORD AVE.	CAMBRIDGE	GAS STATION	8000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
SUNOCO	515 CONCORD AVE.	CAMBRIDGE	GAS STATION	8000	GASOLINE
SUNOCO	515 CONCORD AVE.	CAMBRIDGE	GAS STATION	8000	GASOLINE
SUNOCO	515 CONCORD AVE.	CAMBRIDGE	GAS STATION	4000	DIESEL
SUNOCO	515 CONCORD AVE.	CAMBRIDGE	GAS STATION	550	FUEL OIL
SUNOCO	515 CONCORD AVE.	CAMBRIDGE	GAS STATION	550	WASTE OIL
US PETROLEUM	297 CONCORD AVE.	CAMBRIDGE	GAS STATION	20000	GASOLINE
BOMAR SERVICE CENTER INC	ROUTE 128 NORTHBOUND	LEXINGTON	GAS STATION	10000	GASOLINE
BOMAR SERVICE CENTER INC	ROUTE 128 NORTHBOUND	LEXINGTON	GAS STATION	10000	GASOLINE
BOMAR SERVICE CENTER INC	ROUTE 128 NORTHBOUND	LEXINGTON	GAS STATION	10000	GASOLINE
BOMAR SERVICE CENTER INC	ROUTE 128 NORTHBOUND	LEXINGTON	GAS STATION	10000	GASOLINE
RAYTHEON CO	141 SPRING ST.	LEXINGTON	INDUSTRIAL	4000	GASOLINE
SHELL SERVICE STATION	286 LINCOLN ST.	LEXINGTON	GAS STATION	10000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
SHELL SERVICE STATION	286 LINCOLN ST.	LEXINGTON	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	286 LINCOLN ST.	LEXINGTON	GAS STATION	10000	GASOLINE
XEROX CORP	191 SPRING ST.	LEXINGTON	OTHER	10000	FUEL OIL
XEROX CORP	191 SPRING ST.	LEXINGTON	OTHER	10000	FUEL OIL
DOHERTY'S GARAGE INC	161 LINCOLN RD.	LINCOLN	GAS STATION	15000	GASOLINE
ROBERT J TRACEY	131 CAMBRIDGE TURNPIKE	LINCOLN	GAS STATION	6000	GASOLINE
ROBERT J TRACEY	131 CAMBRIDGE TURNPIKE	LINCOLN	GAS STATION	6000	GASOLINE
ROBERT J TRACEY	131 CAMBRIDGE TURNPIKE	LINCOLN	GAS STATION	2000	GASOLINE
AUTOMATIC DATA PROCESSING INC	225 SECOND AVE.	WALTHAM	OTHER	10000	GASOLINE
BAY COLONY CORPORATE CENTER	1000 WINTER ST.	WALTHAM	OTHER	1000	DIESEL
MOBIL	1335 MAIN ST.	WALTHAM	GAS STATION	10000	GASOLINE
MOBIL	1335 MAIN ST.	WALTHAM	GAS STATION	8000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
MOBIL	1335 MAIN ST.	WALTHAM	GAS STATION	6000	GASOLINE
MOBIL	1335 MAIN ST.	WALTHAM	GAS STATION	6000	DIESEL
MOLA'S EXXON	1455 TRAPELO RD.	WALTHAM	GAS STATION	8000	GASOLINE
MOLA'S EXXON	1455 TRAPELO RD.	WALTHAM	GAS STATION	6000	GASOLINE
MOLA'S EXXON	1455 TRAPELO RD.	WALTHAM	GAS STATION	4000	GASOLINE
MOLA'S EXXON	1455 TRAPELO RD.	WALTHAM	GAS STATION	1000	WASTE OIL
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	20000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	20000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	20000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	20000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	20000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	20000	HAZARDOUS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	12000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	10000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	10000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	10000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	10000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	10000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	10000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	10000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	10000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	10000	HAZARDOUS
POLAROID CORP	1265 MAIN ST.	WALTHAM	INDUSTRIAL	10000	HAZARDOUS
BELMONT AUTO CLINIC	180 BELMONT ST.	WATERTOWN	GAS STATION	6000	GASOLINE
BELMONT AUTO CLINIC	180 BELMONT ST.	WATERTOWN	GAS STATION	6000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
BELMONT AUTO CLINIC	180 BELMONT ST.	WATERTOWN	GAS STATION	6000	GASOLINE
BELMONT AUTO CLINIC	180 BELMONT ST.	WATERTOWN	GAS STATION	500	WASTE OIL
KENDAL GREEN SERVICE CENTER	290 NORTH AVE.	WESTON	GAS STATION	10000	GASOLINE
KENDAL GREEN SERVICE CENTER	290 NORTH AVE.	WESTON	GAS STATION	10000	GASOLINE
KENDAL GREEN SERVICE CENTER	290 NORTH AVE.	WESTON	GAS STATION	5000	GASOLINE
MOBIL OIL CORP	88 BOSTON POST RD.	WESTON	GAS STATION	12000	GASOLINE
MOBIL OIL CORP	88 BOSTON POST RD.	WESTON	GAS STATION	10000	GASOLINE
MOBIL OIL CORP	88 BOSTON POST RD.	WESTON	GAS STATION	10000	GASOLINE
MOBIL OIL CORP	88 BOSTON POST RD.	WESTON	GAS STATION	1000	WASTE OIL
WESTON GOLF CLUB GROUNDS DEPT	275 MEADOWBROOK RD.	WESTON	OTHER	2000	GASOLINE
WESTON GOLF CLUB GROUNDS DEPT	275 MEADOWBROOK RD.	WESTON	OTHER	1000	DIESEL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Cambridge Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0016793	Convergence Of Rtes 2, 16 and 3	Cambridge	Oil
3-0002382	480 Concord Avenue	Cambridge	?
3-0001320	343 Fresh Pond Parkway	Cambridge	?
3-0018589	Wheeler St And Fresh Pond Parkway	Cambridge	Oil And Hazardous Material
3-0002920	260 Lexington Avenue	Cambridge	?
3-0018094	26 Smith Place	Cambridge	Hazardous Material
3-0000269	671 Concord Street	Cambridge	Oil
3-0002594	555 Concord Avenue	Cambridge	?
3-0013222	Wheeler & Concord Streets	Cambridge	Oil
3-0000089	603 Concord Avenue	Cambridge	?

RTN	Release Site Address	Town	Contaminant Type
3-0015303	603 Concord Avenue	Cambridge	Oil
3-0000959	445 Concord Avenue	Cambridge	Oil
3-0019196	201 Vassar Street	Cambridge	Oil
3-0013797	605 Mt Auburn Street	Cambridge	Oil
3-0016604	605 Mt Auburn Street	Cambridge	Oil
3-0002177	191 Concord Avenue	Cambridge	?
3-0013583	450 Concord Avenue	Cambridge	Hazardous Material
3-0001213	1-95 North/Route 2A	Lexington	Oil
3-0011633	286 Lincoln Street	Lexington	Oil
3-0010293	14 Green Street	Waltham	Oil
3-0000582	Jones Rd/Stony Brook	Waltham	Oil And Hazardous Material
3-0013311	175 Wyman Street	Waltham	Hazardous Material
3-0001000	1455 Trapelo Road	Waltham	Oil
3-0003920	39 Warren Avenue	Weston	?

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Canton Water and Sewer Division

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Canton Water and Sewer Division
<i>PWS Address</i>	801 Washington Street
<i>City/Town</i>	Canton, Massachusetts
<i>PWS ID Number</i>	3050000
<i>Local Contact</i>	Ron Redquest - General Supervisor
<i>Phone Number</i>	(781) 821-5017

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

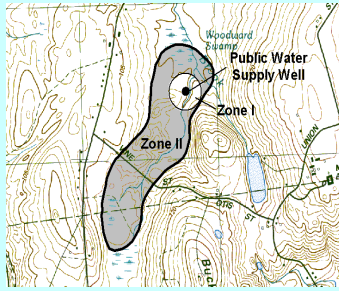
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Zone II #: 223

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Well #4 (Pecunit Street)	3050000-06G

Zone II #: 224

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Well #5 (Forest Ave.)	3050000-07G
Well #7 (Neponset Street)	3050000-09G
Well #10 (Forest Ave.)	3050000-10G

IWPA

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Well #1 (Washington Street)	3050000-01G

The water for the Canton Water and Sewer Division comes from five wells in two Zone IIs and an IWPA. Water is also purchased from the Massachusetts Water Resources Authority (MWRA); a copy of the SWAP report for the MWRA is attached. Each well has a Zone I of 400 feet. Wells #1 and #7 are inactive, but are included in this report. The Zone II #224 for Wells #5, #7, and #10 extends in to the towns of Norwood and Sharon. The IWPA for Well #1 extends from Stoughton into Canton. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map to view the boundaries of the Zone II.

The three active wells are treated for corrosion control and fluoridated for dental health. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The Zone IIs and IWPA for Canton are a mixture of residential, commercial, and light industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Residential Land Uses
3. Transportation Corridors
4. Hazardous Materials Storage and Use
5. Oil or Hazardous Material Contamination Sites
6. Comprehensive Wellhead Protection Planning

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Inappropriate Activities in Zone Is – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. The Zone Is for Well #1, #5, and #10 are owned or controlled by the public water system, but the Zone Is for Well #4 and Well #7 are not. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for Well #4 includes a fairway for a golf course which works with the water supplier to use BMPs to protect the source. The Zone I for Well #7 contains a small corner of an industrial building that is connected to municipal sewer on the edge of the Zone I.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.

- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Residential Land Uses – Much of the Zone IIs and IWPA consists of residential areas. Most of the areas have public sewers, but some areas still use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances.

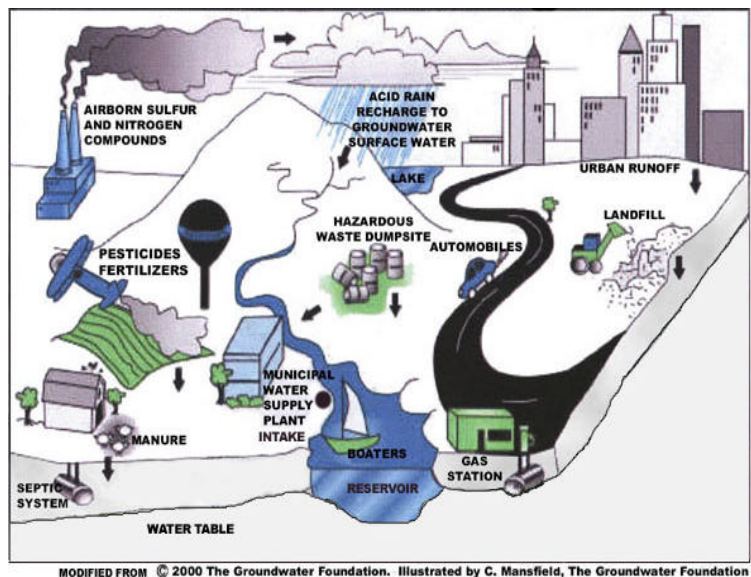


Figure 1: Sample watershed with examples of potential sources of contami-

Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.

- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Transportation Corridors - Route 95 runs through the Zone II for Wells #5, 7 and 10. Local roads are common throughout the Zone II. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash in to catch basins.

Railroad tracks run through the Zone II for Wells #5, 7, and 10. Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals.

Transportation Corridor Recommendations:

- ✓ Identify stormwater drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge stormwater outside of the Zone II.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

4. Hazardous Materials Storage and Use – A small percent of the land area within the Zone IIs and IWPA is commercial or industrial land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

(Continued on page 6)

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Location	Potential Source of Contamination
Commercial				
Gas Stations	2	H	Zone II #224	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	1	H	Zone II #224	Automotive fluids and solvents: spills, leaks, or improper handling
Cemeteries	2	M	Both Zone IIs	Over-application of pesticides: leaks, spills, improper handling; historic embalming fluids
Golf Courses	2	M	Both Zone IIs	Fertilizers or pesticides: over-application or improper handling
Junk Yards and Salvage Yards	1	H	IWPA	Automotive chemicals, wastes, and batteries: spills, leaks, or improper handling
Medical Facilities	1	M	Zone II #223	Biological, chemical, and radioactive wastes: spills, leaks, or improper handling or storage
Photo Processors	1	H	Zone II #224	Photographic chemicals: spills, leaks, or improper handling or storage
Railroad Tracks and Yards	1	H	Zone II #224	Herbicides: over-application or improper handling; fuel storage, transported chemicals, and maintenance chemicals: leaks or spills
Industrial				
Industry/ Industrial Parks	1	H	Zone II #224	Industrial chemicals and metals: spills, leaks, or improper handling or storage
Paper Manufacturers	1	H	Zone II #223	Bleaches, dyes, waste products, and other chemicals: spills, leaks, or improper handling or storage
Residential				
Fuel Oil Storage (at residences)	Numerous	M	All	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	All	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Numerous	M	Zone II #224	Hazardous chemicals: microbial contaminants, and improper disposal

Activities	Quantity	Threat*	Location	Potential Source of Contamination
Miscellaneous				
Aboveground Storage Tanks	4	M	Zone II #223	Materials stored in tanks: spills, leaks, or improper handling
Schools, Colleges, and Universities	3	M	Zone II #223	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Stormwater Drains/ Retention Basins	Numerous	L	Both Zone IIs	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way: Gas	1	L	Zone II #223	Corridor maintenance pesticides: over-application or improper handling; construction
Transportation Corridors	1	M	Zone II #224	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling
Wastewater Treatment Plant/ Collection Facility/ Lagoon	1	M	Zone II #224	Treatment chemicals or equipment maintenance materials: improper handling or storage; wastewater: improper management
Notes:				
<ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

(Continued from page 4)

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP’s for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

5. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0012555, 3-0000941, 3-0020140, 3-0003928, 3-0003538, 3-0000635. Refer to the attached map and Appendix C for more information.

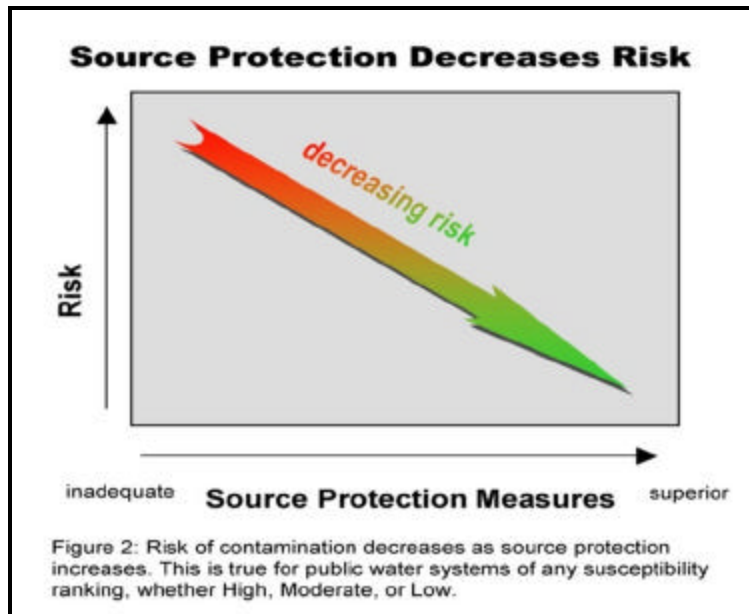
What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

6. Protection Planning – Currently, the Town has water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.



Protection Planning Recommendations:

- ✓ Develop a comprehensive Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). If they do not meet the current regulations, adopt controls that meet 310 CMR 22.21(2). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Other land uses and activities within the Zone IIs and IWPA are listed in Table 2. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs and IWPA contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:



Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES - Well #1, #5, #10 NO - Well #4, #7	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with “Public Drinking Water Supply” Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES - Well #1, #5, #10 NO - Well #4, #7	Continue monitoring non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town “Aquifer Protection District” bylaw currently meets DEP’s requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	NO	Continue to work with Sharon and Stoughton to include your water supply protection areas in their wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	YES	Develop a comprehensive wellhead protection plan. Follow “Developing a Local Wellhead Protection Plan” available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal “Emergency Response Plan” to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens’ groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	Local fire department conducts a hazardous materials inspection program. For more guidance see “Hazardous Materials Management: A Community’s Guide” at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	YES	Aim additional efforts at commercial, industrial and municipal uses within the Zone IIs and IWPA.

- Working with Zone I land uses such as the golf course to implement BMPs for groundwater protection.
- Working with the fire department on emergency response for the I95 corridor.
- Proactively pursuing and receiving funding through the DEP Wellhead Protection Grant Program to conduct hazardous materials inspections.
- Purchasing land near a new well for protection purposes.
- Adoption of Consolidated Drainage Bylaw that meets Phase II stormwater requirements.
- Annual Household Hazardous Waste Collection Day.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone Is regularly, and when feasible, remove any non-water supply activities.
 - ✓ Educate residents on ways they can help you to protect drinking water sources.
 - ✓ Continue to work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone IIs and IWPA and to cooperate on responding to spills or accidents.
 - ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
-
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
 - ✓ Develop and implement a comprehensive Wellhead Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection’s Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP’s Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN CANTON'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
137370	Advanced Alternative, Inc.	647 Chapman Street	Canton	Fuel Dispenser	Fuel Dispenser Stage II
35375	Bills Auto Repair	599 Neponset Street	Canton	Handler	Very Small Quantity Generator
35375	Bills Auto Repair	599 Neponset Street	Canton	Fuel Dispenser	Fuel Dispenser Stage II
324891	Blue Hill Press	480 Neponset Street	Canton	Handler	Very Small Quantity Generator
324891	Blue Hill Press	480 Neponset Street	Canton	Handler	Very Small Quantity Generator - Waste Oil/Pcbs Only
36897	Canton Auto Clinic	1047 Turnpike Street	Canton	Handler	Very Small Quantity Generator
26517	Crathco Inc	480 Neponset Street	Canton	Handler	Very Small Quantity Generator
215619	Downey Joe Chevrolet Inc.	1027 Turnpike Street	Canton	Handler	Very Small Quantity Generator
215619	Downey Joe Chevrolet Inc.	1027 Turnpike Street	Canton	Handler	Large Quantity Generator - Waste Oil/Pcbs Only
130458	Draper Properties Inc.	28 Draper Lane	Canton	Plant	AQ Synthetic Minor W/Restr Pte < Or = 25% Of Maj
130458	Draper Properties Inc.	28 Draper Lane	Canton	Discharge	MWRA Sewer Connection
130469	Emerson & Cuming Composites Material Inc.	59 Walpole Street	Canton	TURA Reporter	Large Quantity Toxic User

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
130469	Emerson & Cuming Composites Material Inc.	59 Walpole Street	Canton	Handler	Small Quantity Generator
216787	Grindmaster Corporation	480 Neponset Street	Canton	Discharge	MWRA Sewer Connection
227867	Massachusetts Hospital School	3 Randolph Street	Canton	Plant	AQ Synthetic Minor W/Restr But <Or= 50% Of Maj
227867	Massachusetts Hospital School	3 Randolph Street	Canton	Handler	Very Small Quantity Generator
284322	Otis Clapp And Sons Inc.	115 Shawmut Road	Canton	Discharge	MWRA Sewer Connection
258544	Sherman Printing Company Inc.	1020 Turnpike Street	Canton	Handler	Small Quantity Generator
258544	Sherman Printing Company Inc.	1020 Turnpike Street	Canton	Handler	Small Quantity Generator - Waste Oil/Pcbs Only
135687	Sun Company Inc.	702 Neponset Street	Canton	Handler	Very Small Quantity Generator
126606	Sunoco	2782 Washington Street	Canton	Fuel Dispenser	Fuel Dispenser Stage II
216809	Tamfelt Inc.	28 Draper Lane	Canton	Discharge	MWRA Sewer Connection
130470	TDL Incorporated	550 Turnpike Street	Canton	Handler	Very Small Quantity Generator
130470	TDL Incorporated	550 Turnpike Street	Canton	Plant	AQ Natural Minor W/ PTE < Or = 25% Of Maj
53500	Town of Canton	1492 Washington Street	Canton	Discharge	MWRA Sewer Connection

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131201	New England Sinai Hospital	150 York Street	Stoughton	Handler	Small Quantity Generator
35695	Will CC Materials Corp.	168 Washington Street	Stoughton	Handler	Very Small Quantity Generator

UNDERGROUND STORAGE TANKS WITHIN CANTON'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
Bills Auto Repair	599 Neponset Street	Canton	Gas Station	10000	Gasoline
Bills Auto Repair	599 Neponset Street	Canton	Gas Station	8050	Gasoline
Mass Hospital School	3 Randolph Street	Canton	Medical Facility	2500	Gasoline
Sunoco	702 Neponset Street	Canton	Gas Station	15000	Gasoline
Sunoco	702 Neponset Street	Canton	Gas Station	15000	Gasoline
New England Sinai Hospital	150 York Street	Stoughton	Medical Facility	1500	Diesel

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Canton Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0012555	702 Neponset Street	Canton	Oil
3-0000941	Neponset Street	Canton	--
3-0020140	Neponset Street	Canton	Hazardous Material
3-0003928	854 Neponset Street	Canton	Oil
3-0003538	599 Neponset Street	Canton	Oil
3-0000635	647 Chapman Street	Canton	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).

Source Water Assessment Program (SWAP) Report For Carlisle Public School



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
January 4, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Carlisle Public School
<i>PWS Address</i>	83 School Street
<i>City/Town</i>	Carlisle
<i>PWS ID Number</i>	3051004
<i>Local Contact</i>	David R. Flannery - Operator
<i>Phone Number</i>	978-369-6550

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Wilkins Well	3051004-01G	172	467	High

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

Maintaining Your Good Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

INTRODUCTION

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments including a Map of the Protection Areas

1. DESCRIPTION OF THE WATER SYSTEM

The Well

The well for the Carlisle Public School is located to the southwest side of the main school building. The well is 8 inches in diameter and is drilled to a depth of 400 feet. Wilkins Well has a Zone I radius of 170 feet and an Interim Wellhead Protection Area (IWPA) radius of 467 feet. The well is located in a sand and gravel aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the well location, Zone I and IWPA.

The Water Quality

The water quality of the well currently meets all US Environmental Protection Agency and MA Department of Environmental Protection (DEP) drinking water standards. The well serving the Carlisle Public School has chlorine added as a disinfectant. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above.

2. DISCUSSION OF LAND USES IN THE PROTECTION AREAS

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **inappropriate activities in Zone I;**
2. **potential discharge of hazardous waste to the septic system; and**
3. **floor drains**

The overall ranking of susceptibility to contamination for the well is high, based on the presence of at least one high threat land use or activity in the IWPA.

1. **Zone I** - Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The Carlisle Public School's Zone I contains school buildings, access road, and dumpster in the loading dock area adjacent to the kitchen. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

2. **Hazardous Materials/Waste** - Carlisle Public School currently participates with the Town of Carlisle in its Household Hazardous Waste collection to discard many of its spent products (i.e. motor oil, fluorescent bulbs, and batteries). Discharge from photographic, art, and science classrooms, and maintenance garage MUST go to a DEP approved tight tank. Staff should be trained on proper transportation and disposal of hazardous materials/waste.

3. **Floor Drains** - The floor drains located in the maintenance garage and boiler room are prohibited by DEP regulations. Compliance can be achieved by rerouting the discharges to a DEP approved tight tank or eliminating the floor drains if they aren't needed.

3. PROTECTION RECOMMENDATIONS

Implementing protection measures and best management practices (BMPs) will reduce the Wilkins Well's susceptibility to contamination. Carlisle Public School is commended for participating in the Town of Carlisle's Hazardous Household Waste collection (refer to comments in Facilities Management section); for using calcium chloride instead of sodium chloride as a deicing agent; for not using pesticides on the school property; for being a member of the Center District Water Quality Committee; and for participating in the "Tools for Schools" indoor air quality program. Carlisle Public School should review and adopt the following recommendations at the school:

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

Table 2: Table of Activities within the Water Supply Protection Areas

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
School	Storage, use, and improper disposal of hazardous materials	Yes	Yes	High	Materials in photographic, art, and science classrooms – sink drains discharge to septic system in IWPA
	School buildings and maintenance garage	Yes	Yes	Moderate	Non-water supply structures in Zone I; floor drains in cafeteria and boiler room connected to septic system; maintenance garage floor drain is connected to a storm drain that discharges to IWPA
	Parking lot, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
	Septic System	No	Yes	Moderate	See septic systems brochure in the appendix
	Storm drains	No	Yes	Low	Floor drain in garage discharges to storm drain

* For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities (especially the dumpster at the loading dock outside the kitchen door) from the Zone I to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ **Bring the floor drains into compliance with Department Regulations** (refer to Industrial Floor Drain Brochure attached).
 - * Contact the UIC coordinator for the Northeast Region Office of the Department for additional technical assistance (Ron Stelline Tele. #978-661-7656).
 - * Interim Actions: cease using the floor drains
- ✓ Prohibit public access to the well by gating access road, fencing, and posting signs.
- ✓ Contain chlorine day tank; properly contain all oils, paints and fuels stored in garage area.
- ✓ Conduct regular inspections of the Zone I and IWPA. Look for illegal dumping, evidence of vandalism, check any above ground tanks for leaks, etc.
- ✓ Redirect road and parking lot drainage away from well. Work with your community to ensure that stormwater runoff in the IWPA is directed away from the well and is treated according to DEP guidance.
- ✓ Continue practice of not using pesticides, fertilizers or road salt within Zone I.
- ✓ Use propane or natural gas for back-up power sources.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information please refer to the attached program fact sheet from last year (Please note each program year the Department posts a new Request for Response for the Grant program (RFR)).

Training and Education:

- ✓ Train staff on proper hazardous material use, transportation, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff.
- ✓ Post drinking water protection area signs at key visibility locations.

- ✓ Incorporate groundwater education into school curriculum (K-6 and 7-12 curricula available; contact DEP for copies).

Facilities Management:

- ✓ Schools staff indicated they currently do not fertilizers or apply pesticides in the Zone I.
- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at <http://www.dep.state.ma.us/dep/bwp/dhm/dhmpubs.htm>
- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. In areas where hazardous materials are used or stored, floor drains must be sealed or discharge to a tight tank.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.
- ✓ Concrete pads should slope away from well and well casing should extend above ground.

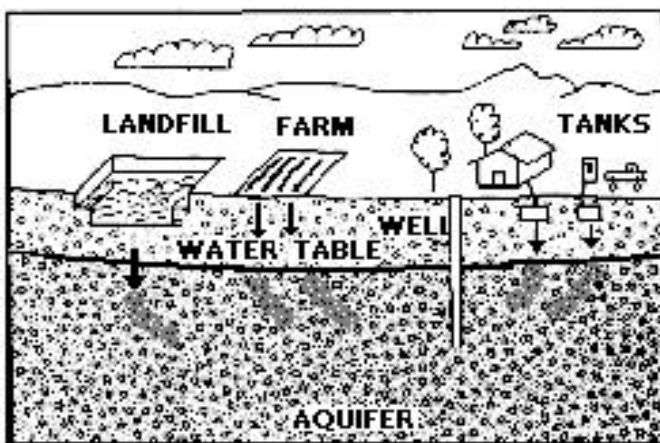


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:

www.state.ma.us/dep/brp/dws

- ✓ For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.
- ✓ In order for Carlisle Public School to transport hazardous waste/waste oil to the Town of Carlisle's Hazardous Waste Collection Center, the school must complete and submit to DEP the enclosed Generator Registration form.
 - * Contact the Hazardous Waste coordinator for the Northeast Region Office of the Department for additional technical assistance (John Keating Tele. #978-661-7631).

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

Planning:

- ✓ Work with local officials in Carlisle in creating a Groundwater Protection District Bylaw to meet current DEP regulations, and include the Carlisle Public School's IWPA to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Attachments:

- Map of the Public Water Supply (PWS) Protection Area.
- Wellhead Protection Tips For Small Public Water Systems
- Industrial Floor Drains brochure
- Underground Injection Wells and Your Drinking Water
- A Reference Guide for Homeowners: Your Septic System
- Summary of Recommended Source Water Protection Measures
- Protecting Groundwater from Pesticides
- Healthy Lawn/Healthy Environment
- Source Protection Sign Order Form
- DEP Publications - Hazardous Waste Management
- Hazardous Waste & Your School
- Massachusetts Department of Environmental Protection - Generator Registration and Fact Sheet

Copies of this assessment have been provided to the water supplier, town boards, the town library and the local media.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Source Water Assessment Program (SWAP) Report For Assurance Technology



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
January 8, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Assurance Technology
<i>PWS Address</i>	84 South Street
<i>City/Town</i>	Carlisle
<i>PWS ID Number</i>	3051011
<i>Local Contact</i>	Kevin Cadorette – Maintenance Supervisor
<i>Phone Number</i>	978-369-8848

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	3051011-01G	162	457	High
Well #2*	3051011-02G	162	457	High

*NOTE: Well #2 is an "Emergency" Source and is not used on a regular basis.

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

Maintaining Your Good Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

INTRODUCTION

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attached Map of the Protection Areas

1. DESCRIPTION OF THE WATER SYSTEM

The Wells

Assurance Technology is a public water system currently serving 75 employees. Well #1 is located on the south side of the barn, and is 4 inches in diameter and drilled to a depth of 325 feet. Well #1 has a Zone I radius of 162 feet and an Interim Wellhead Protection Area (IWPA) radius of 457 feet. Well #2, an emergency source, is inside the main building, and is 4 inches in diameter and drilled to a depth of 525 feet. Well #2 has a Zone I radius of 162 feet and an Interim Wellhead Protection Area (IWPA) radius of 457 feet. These wells are located in bedrock with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the well locations, Zone I and IWPA.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

The Water Quality

The water quality of Well #1 currently meets all US Environmental Protection Agency and MA Department of Environmental Protection (DEP) drinking water standards. Well #1 Assurance Technology has potassium hydroxide added to raise the pH of the water to reduce its corrosiveness. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above.

2. DISCUSSION OF LAND USES IN THE PROTECTION AREAS

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. inappropriate activities in Zone Is; and
2. potential discharge of hazardous material to the septic system through a floor drain in the basement.

The overall ranking of susceptibility to contamination for the well is high, based on the presence of at least one high threat land use or activity in the IWPA.

1. **Zone Is** - Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. Assurance Technology's Zone I contains buildings, roads, parking areas, a maintenance barn, and a septic tank. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

2. **Hazardous Materials** – A floor drain in the basement currently discharges to the septic tank that is located in the Zone I, and to the leaching field that is located in the IWPA. If hazardous materials are stored in this area, discharge from the basement floor drain **MUST** be sealed or go to a tight tank, and staff should be trained on proper disposal of hazardous materials.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

Table 2: Table of Activities within the Water Supply Protection Areas

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Engineering	Storage, use, and improper disposal of hazardous materials	Yes	Yes	High	Small quantities of hazardous materials stored in the barn
	Parking lot, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
	Septic system	Yes	Yes	Moderate	See septic systems brochure attached
	Structures	Yes	Yes	Moderate	Non-water supply structures in Zone I

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

3. PROTECTION RECOMMENDATIONS

Assurance Technology should review and adopt the following recommendations:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities (such as parking, storage of hazardous materials, etc.) from the Zone I to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.
- ✓ If land uses such as the maintenance barn continue to operate in the Zone I, work with operators to implement Best Management Practices to protect the water supply.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ If necessary, bring the floor drain into compliance with Department Regulations (refer to Industrial Floor Drain Brochure attached).
 - * Contact the UIC coordinator for the Northeast Region Office of the Department for additional technical assistance (Ron Stelling Tele. #978-661-7656).
 - * Interim Actions: cease using the floor drains
- ✓ Prohibit public access to the wells by fencing, and posting signs.
- ✓ Conduct regular inspections of the Zone I and IWPA. Look for illegal dumping, evidence of vandalism and check any above ground tanks for leaks, etc.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.
- ✓ Redirect road and parking lot drainage away from well. Work with your community to ensure that stormwater runoff in the IWPA is directed away from the well and is treated according to DEP guidance.
- ✓ Do not use or store pesticides, fertilizers or road salt within Zone I.
- ✓ Use propane or natural gas for back-up power sources.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information please refer to the attached program fact sheet from last year (Please note each program year the Department posts a new Request for Response for the Grant program (RFR)).

Training and Education:

- ✓ Train staff and residents on proper hazardous material use, transportation, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator.
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use, transportation and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at:
<http://www.dep.state.ma.us/dep/bwp/dhm/dhmpubs.html>

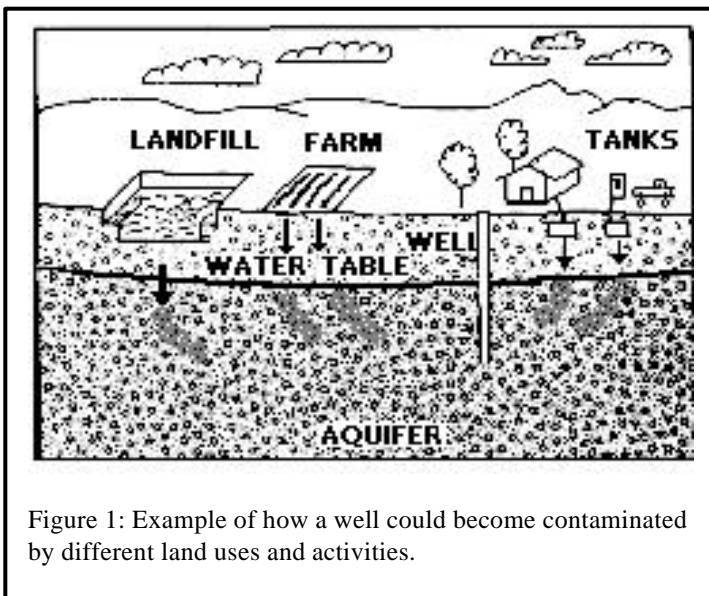


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:
www.state.ma.us/dep/brp/dws.

- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. In areas where hazardous materials are used or stored, floor drains must be sealed or discharge to a DEP approved tight tank.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on Assurance Technology property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the Attachment for more information regarding septic systems.
- ✓ Concrete pads should slope away from well and well casing should extend above ground.
- ✓ For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

Planning:

- ✓ Work with local officials in Carlisle in creating a Groundwater Protection District Bylaw to meet current DEP regulations, and include Assurance Technology's IWPA..
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

The above recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

Attachments:

- Map of the Public Water Supply (PWS) Protection Area.
- Wellhead Protection Tips For Small Public Water Systems
- Industrial Floor Drains brochure
- A Reference Guide for Homeowners: Your Septic System
- Summary of Recommended Source Water Protection Measures
- Protecting Groundwater from Pesticides
- Healthy Lawn/Healthy Environment
- Source Protection Sign Order Form
- DEP Publications - Hazardous Waste Management

Copies of this assessment have been provided to the water supplier, town boards, the town library and the local media.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix



**Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Wee Forest Folk**

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource
Protection,
Drinking Water Program

Date Prepared:
February 25, 2004

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Wee Forest Folk
<i>PWS Address</i>	887 Bedford Road
<i>City/Town</i>	Carlisle, Massachusetts 01921
<i>PWS ID Number</i>	3051019
<i>Local Contact</i>	Deborah Bray
<i>Phone Number</i>	(978) 486-1008

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	3051019-01G	100	422	moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

Wee Forest Folk maintains and operates one public water supply source located within the Concord River basin. Well #1 has a Zone I radius of 100 feet and an Interim Wellhead Protection Area (IWPA) radius of 422 feet. This well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. Activities in Zone I
2. Residential Land Uses

The overall ranking of susceptibility to contamination for the well is moderate, based on the presence of at least one moderate threat land use or activity in the IWPA, as seen in Table 2.

1. Activities in Zone Is – Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for Wee Forest Folk contains a residence with an on-site septic system, and parking for twenty-seven cars.

Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Remove parking spaces adjacent to the well.
- ✓ Direct run-off away from the well.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Residential Land Uses – Approximately 33% of the IWPA consists of residential areas. All of the residences have on-site septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Fuel Oil Storage (at residences)	No	Yes	Moderate	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	Yes	Yes	Moderate	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	Yes	Yes	Moderate	Microbial contaminants, and improper disposal of hazardous chemicals

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Common potential sources of contamination include:

- ◆ **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- ◆ **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- ◆ **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- ◆ **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

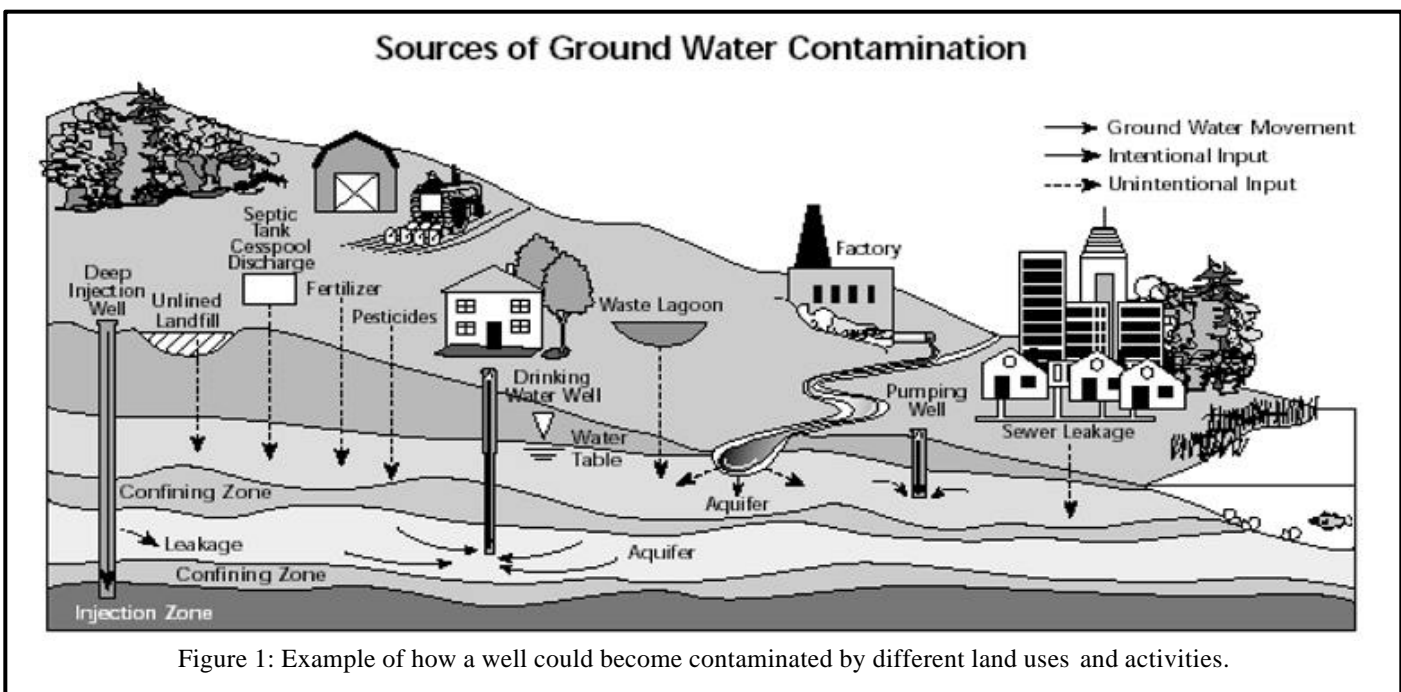
- ✓ Work with community to educate residents on best management practices (BMPs) for protecting water supplies. Encourage the distribution of the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with community to promote BMPs for stormwater management and pollution controls.

3. Protection Recommendations

Implementing protection measures and BMPs will reduce Well #1 susceptibility to contamination. Wee Forest Folk should review and adopt the key recommendations above and the following:

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include landscapers and certified operator. Post labels as appropriate on raw materials and hazardous waste.
- ✓ Post drinking water protection area signs at key visibility locations.



For More Information:

Contact Anita Wolovick in DEP's NERO at (617) 654-6535 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/ including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, and town boards.

Planning:

- ✓ Work with local officials in Carlisle to include the Wee Forest Folk's IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area
- SWAP Report for Wee Forest Folk
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Chelmsford Water District

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Chelmsford Water District
<i>PWS Address</i>	20 Watershed Lane
<i>City/Town</i>	Chelmsford
<i>PWS ID Number</i>	3056000
<i>Local Contact</i>	Robert Doak
<i>Phone Number</i>	(978)256-2931

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

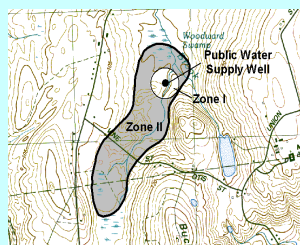
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Additional Resources Available for Source Protection
5. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 283

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Canal St. GP Well #1 (emergency source)	3056000-18G
Canal St. GP Well #2 (emergency source)	3056000-19G
Mill Rd. GP Well #1	3056000-05G
Mill Rd. GP Well #2	3056000-16G
Mill Rd. GP Well #3	3056000-15G
Riverneck Rd. GP Well #1	3056000-09G
Riverneck Rd. GP Well #2	3056000-11G
Smith St. GP Well #1	3056000-07G
Smith St. GP Well #2	3056000-14G
Turnpike Rd. GP Well #1	3056000-02G

Zone II #: 284

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Crooked Spring GP Well #1	3056000-06G
Crooked Spring GP Well #2	3056000-08G
Jordan Road GP Well	3056000-03G
Meadowbrook Rd GP Well #1	3056000-12G
Meadowbrook Rd GP Well #2	3056000-10G

The Chelmsford Water District (Chelmsford) is supplied by fifteen (15) wells that draw water from various locations throughout Chelmsford. The fifteen (15) wells are located in two separate Zone IIs (refer to attached Source Water Assessment Program maps for individual well locations). Each well has a Zone I radius of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

All fifteen (15) of Chelmsford's wells have potassium hydroxide added to adjust the pH for corrosion control. Mill Road Wells 1, 2, and 3, Turnpike Road Well, and Meadowbrook Wells 1 and 2, have sodium hypochlorite added for disinfection, and phosphate added as a sequestering agent for iron and manganese. The Jordan Road Well has sodium hypochlorite added for disinfection. Canal Street Wells 1 and 2 have not been used since the mid-1980's, and currently serve as emergency sources. Both wells are expected to be returned to service in the near future.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

Both Zone IIs for Chelmsford include a mixture of forested, residential, commercial, industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key issues include:

1. Transportation Corridor
2. Railroad Right Of Way
3. Local Businesses
4. Stormwater Catch Basins
5. Residential Land Uses and Activities
6. Oil or Hazardous Material Contamination Sites
7. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for Chelmsford is high, based on the presence of at least one high threat land use within the Zone II, as seen in Table 2.

1. Transportation Corridor - Routes 3 runs through Zone II #284, and Route 3 and 495 run through Zone II #283. Both routes are in close proximity to some of Chelmsford's wells. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. De-icing salt washes off into storm drains or onto adjacent ground. In addition, roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

Transportation Corridor - Recommendations:

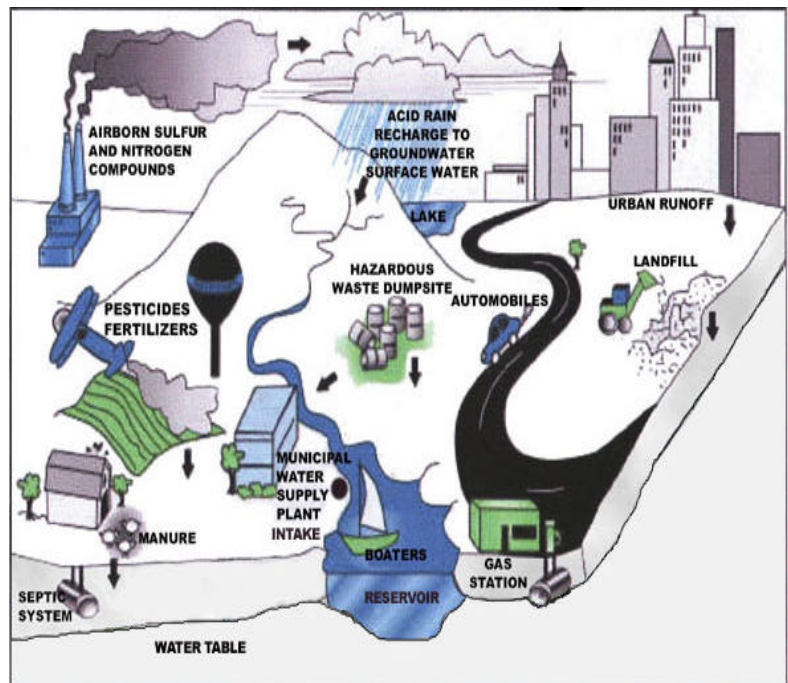
- ✓ **Low Salt Areas** - Join in efforts with the other water districts to submit a formal request to MA Highway Department and the Town of Chelmsford in establishing Low Salt Areas along Route 3 and local roads. Encourage both organizations to educate employees and private contractors of the restrictions in designated Low Salt Areas.
- ✓ **Design and Best Management Practices** - Continue working with Massachusetts Highway Department and its contractors to design a stormwater drainage system along Route 3, north and south bound lanes, that discharge stormwater outside of the Zone II from Drum Hill Rotary to a point downstream of the Chelmsford Center Water District.
- ✓ **Planning and Developing** - Notify town officials of EPA's Intermodal Surface Transportation Efficiency Act. The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 contains provision for the planning and developing of highway systems and transportation enhancement activities, including the mitigation of water pollution due to highway runoff.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



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Through ISTEA, states are able to use a portion of their federal funding allotment for runoff pollution control devices and other BMPs to prevent polluted runoff from reaching their lakes, rivers, and bays.

2. Railroad Right-Of-Way – Rail corridors serving passenger and/or freight trains are potential contaminant sources due to chemicals released during normal use, track maintenance, and accidents. Over-application or improper handling of herbicides during railroad right-of-way maintenance is a potential source of contamination. Leaks or spills of transported chemicals or train maintenance chemicals are also potential sources of contamination to the water supply.

Railroad Right-of-Way - Recommendations:

- ✓ **Best Management Practices** - Work with local officials during their review of the railroad right-of-way Yearly Operating Plan to ensure Best Management Practices are implemented with regard to vegetation control in the Zone II, and that pesticides are not used in the Zone I, in accordance with 333 CMR 11.00: Rights-of-Way Management.
- ✓ **Emergency Response Plan** - Work with your local fire department to review emergency response plans. Request that emergency response teams practice containment of potential contaminants from train accidents.



3. Local Businesses – Because many small businesses and industries use hazardous materials, produce hazardous waste products, and often store large quantities of petroleum products, there is the potential for degrading water quality. Educating the business community about drinking water protection, and encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

Local Businesses - Recommendations:

- ✓ **Hazardous Materials Program Best Management Practices** - Support the development and implementation of a hazardous materials program that includes a Bylaw or Health Regulation. 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. See DEP’s website for additional information on developing a program for hazardous materials management at <http://www.state.ma.us/dep/brp/dws/files/hazmat.doc>.
- ✓ **Inspection Program** – Coordinate efforts with local officials and the other water districts in the development and implementation of an Inspection Program which is usually conducted by the local Board of Health to prevent hazardous substances from entering water supplies. Inspections target facilities that generate, use, store, or disposal of hazardous/toxic materials. Programs can also include floor drain inspections and underground storage tanks. Local inspection programs often provide educational material and technical assistance on Best Management Practices. Building Inspectors are often involved in local inspection programs.
- ✓ **Hazardous Materials Best Management Practices** - Work with local businesses to encourage training on proper hazardous material use, disposal, and emergency response. Refer to the attached list of resources for more information on hazardous material BMPs.

What are "BMPs?"

Best Management Practices are structural (i.e. oil & grease trap catch basins), nonstructural (i.e. hazardous waste collection days) or managerial measures that are used to protect and improve surface water and groundwater quality.

- ✓ **Storage Tanks** - Support your local fire department in upgrading all above and below ground oil/hazardous material storage tanks in order to meet current construction standards. Funding for replacing underground storage tanks is available through the MA Department of Revenue. For more information, refer to http://www.dor.state.ma.us/ust/ust_home.htm
- ✓ **Register Hazardous Waste Generators** - Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil.
- ✓ **Monitor Land Uses** - Work with the Selectmen, Board of Health and Planning Board to monitor land uses within and proximal to the Zone II. Refer to the Wellhead Protection Plan guidance and model bylaws at <http://www.state.ma.us/dep/brp/dws/files/whplan.doc> for types of activities that should be prohibited and managed in the vicinity of public or private water supplies.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix 2: Regulated Facilities within the Water Supply Protection Area

Activities	Zone II # 283	Zone II # 284	Threat*	Potential Source of Contamination*
Agricultural				
Fertilizer Storage or Use	1	-	M	Fertilizers: leaks, spills, improper handling, or over-application
Manure Storage or Spreading	2	-	H	Manure (microbial contaminants): improper handling
Nurseries	1	1	M	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling or over application
Commercial				
Body Shops	1	-	H	Vehicle paints, solvents, and primer products: improper management
Car/Truck/Bus Washes	2	-	L	Vehicle wash water, soaps, oils, greases, metals, and salts: improper management
Gas Stations	9	1	H	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	2	3	H	Automotive fluids, and solvents: spills, leaks, or improper handling
Bus and Truck Terminals	3	-	H	Fuels and maintenance chemicals: spills, leaks, or improper handling
Cemeteries	2	1	M	Pesticides: improper handling or over-application of, leaks or spills, and historic embalming fluids
Dry Cleaners	2	-	H	Solvents and wastes: spills, leaks, or improper handling
Golf Courses	-	1	M	Fertilizers, pesticides, petroleum products and other chemicals: over-application or improper handling, spills, or leaks
Junk Yards and Salvage Yards	1	-	H	Automotive chemicals, wastes, and batteries: spills, leaks, or improper handling
Laundromats	1	-	L	Wash water: improper management
Medical Facilities	1	-	M	Biological, chemical, and radioactive wastes: spills, leaks, or improper handling or storage
Nursing Homes	-	2	L	Medical waste, cleaning compounds: microbial contaminants; improper handling, storage and disposal
Photo Processors	2	-	H	Photographic chemicals: spills, leaks, or improper handling or storage
Printer And Blueprint Shops	1	1	M	Printing inks and chemicals: spills, leaks, or improper handling or storage
Railroad Tracks And Yards	-	1	H	Herbicides, transported chemicals and maintenance chemicals; fuel storage: over-application or improper handling, leaks or spills

Activities	Zone II # 283	Zone II # 284	Threat*	Potential Source of Contamination*
Repair Shops (Engine, Appliances, Etc.)	1	-	H	Engine fluids, lubricants, and solvents: spills, leaks, or improper handling or storage
Sand And Gravel Mining/Washing	-	1	M	Heavy equipment, fuel storage, clandestine dumping: spills or leaks
Industrial				
Asphalt, Coal Tar, And Con- crete Plants	1	-	M	Hazardous chemicals and wastes: spills, leaks, or improper handling or storage
Chemical Manufacture Or Storage	2	1	H	Chemicals and process wastes: spills, leaks, or improper handling or storage
Electronics/Electrical Manufacturers	Numerous	-	H	Chemicals and process wastes: spills, leaks, or improper handling or storage
Electroplaters	1	-	H	Solvents and other chemicals: spills, leaks, or improper handling or storage
Foundries Or Metal Fabricators	1	-	H	Solvents and other chemicals: spills, leaks, or improper handling or storage
Fuel Oil Distributors	2	-	H	Fuel oil: spills, leaks, or improper handling or storage
Hazardous Materials Storage	-	1	H	Hazardous materials: spills, leaks, or improper handling or storage
Industry/Industrial Parks	2	-	H	Industrial chemicals and metals: spills, leaks, or improper handling or storage
Machine/Metalworking Shops	7	-	H	Solvents and metal tailings: spills, leaks, or improper handling
Residential				
Fuel Oil Storage (at residences)	Numerous	Numerous	M	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	Numerous	M	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	-	Numerous	M	Household hazardous waste: improper disposal, and microbial contaminants
Miscellaneous				
Aboveground Storage Tanks	8±	3	M	Materials stored in tanks: spills, leaks, or improper handling
Aquatic Wildlife and Pet Waste	Numerous	Numerous	L	Microbial contaminants
Clandestine (Illegal) Dumping	-	1	H	Construction debris, household refuse: hazardous materials or wastes
Combined Sewer Overflows	-	1	L	Industrial wastewater, road run-off: microbial and non-microbial contaminants, and improper disposal of hazardous wastes
Large Quantity Hazardous Waste Generators	2	-	H	Hazardous materials and waste: spills, leaks, or improper handling or storage
NPDES Locations	1	-	L	Hazardous material and wastes: improper disposal
Oil or Hazardous Material Sites	16	4	----	Oil or hazardous materials and waste: spills, leaks, or improper handling or storage
Pipeline (Oil or Sewer)	5	-	M	Oil or sewage: spills or leaks

Activities	Zone II # 283	Zone II # 284	Threat*	Potential Source of Contamination
Road And Maintenance Depots	-	2	M	Asphalt materials and other chemicals, aboveground and underground storage tanks with gasoline and diesel storage: spills, leaks, or improper handling of deicing materials
Salt or Deicing Material Storage	-	3	M	Deicing materials: improper handling and storage, run-off
Schools, Colleges, and Universities	2	1	M	Fuel oil, laboratory, art, photographic, machine shop, cleaning and other chemicals; over- application or improper management of fertilizers and pesticides on athletic fields; parking areas; spills, leaks, or improper handling
Small Quantity Hazardous Waste Generators	12	1	M	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Numerous/1	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way-Type: <u>electric</u>	2	1	L	Construction and corridor maintenance, over-application or improper handling of pesticides
Transportation Corridors	2	1	M	Fuels and other hazardous materials: accidental leaks or spills, over-application or improper handling of pesticides
Underground Storage Tanks	35±	9	H	Petroleum products, potassium hydroxide (KOH) (water treatment chemical tanks are fiberglass and are in cement vaults); spills, leaks, or improper
Utility Substation Transformers	-	1	L	Fuels and other hazardous materials: spills, leaks, or improper handling
Very Small Quantity Hazardous Waste Genera-	13	-	L	Hazardous materials and waste: spills, leaks, or improper handling or storage
Wastewater Treatment Plant/Collection Facility/	3	2	M	Treatment chemicals or equipment maintenance materials: improper handling or storage; wastewater: improper management
Water Treatment Sludge Lagoon	1	1	M	Sludge and wastewater: improper management
<p>Water Supply Protection Area % that is Sewered = 65%</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

- ✓ **Lawn care and Landscaping** - Encourage local businesses to incorporate Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides. For more information, refer to http://www.massdfa.org/pesticides/publications/IPM_kit_for_bldg_mgrs.pdf
- ✓ **Office of Technical Assistance** - For additional help regarding environmental requirements and toxic use reduction approaches to compliance contact the Office of Technical Assistance (OTA) for Toxic Use Reduction. The OTA is a nonregulatory agency within the Commonwealth's Executive Office of Environmental Affairs. OTA provides free, confidential assistance on toxic use reduction opportunities. <http://www.state.ma.us/ota/>

4. Stormwater Catch Basins – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

Stormwater Catch Basins – Recommendations:

- ✓ **Inspect, Maintain, and Clean** - Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Additionally, street and parking lot sweeping reduces the amount of potential contaminants in runoff. Note: Catch basin cleanings are classified as solid waste by DEP and must be handled and disposed in accordance with all regulations, policies, and guidance. In the absence of written approval from DEP, catch basin cleanings must be taken to a facility permitted by DEP to accept solid waste. For information on DEP's Nonpoint Competitive Grants Program Upcoming Funding Opportunity refer to: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm#wpa>.
- ✓ **Best Management Practices** - Work with the Town to develop Best Management Practices that are the most effective, practical means of preventing or reducing pollution from nonpoint sources. Information is available at <http://www.epa.gov/OWOW/NPS/roads.html>.

- ✓ **Local Controls** - Encourage local officials to develop a local stormwater ordinance. For more information see <http://www.epa.gov/owow/nps/ordinance/stormwater.htm>.
- ✓ **Storm Drain Stenciling Program** - Work with local watershed groups to institute a Storm Drain Stenciling Program. For more information on how to develop a storm drain stenciling program go to <http://www.earthwater-stencils.com>
- ✓ **Stormwater Planning** - Encourage local officials to become familiar with and begin to implement a stormwater management program to meet DEP's Phase II Storm Water Regulations. For additional information, refer to the Stormwater Management Information at <http://www.state.ma.us/dep/brp/ww/wwpubs.htm#storm>.

5. Residential Land Uses and Activities - If managed improperly, household hazardous waste, septic systems, lawn care, and pet waste can all contribute to groundwater contamination. Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Fertilizers and pesticides contain hazardous chemicals that can travel through the soil and contaminate ground water if over-applied. Pet waste may contain bacteria, parasites, or viruses that are a health risk. Water supplies may also be threatened from improper use in disposal of chemical products used in homes or businesses. Steps to educate residents and businesses on proper disposal of these materials is the best defense from pollution.

Residential Recommendations - Household Hazardous Waste:

- ✓ **Proper Disposal** - Educate residents on the problem of disposing of hazardous materials in landfills, septic systems, wastewater treatment plants, storm drains, and on the ground. Encourage residents to use the Town of Chelmsford's Household Hazardous Waste Collection center. The Town of Chelmsford conducts a spring and fall household hazardous waste collection day at the Chelmsford Town Hall.
- ✓ **Alternative Products** - Provide residents with information on options that are available to substitute less hazardous substances for many products used in the home.

**Top 5 Reasons to
Develop a Local Wellhead
Protection Plan**

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Residential Recommendations - Septic systems:

- ✓ **System Care** - Educate residents on private septic systems about using cleaning compounds that are safe for the septic system, on proper disposal practices, i.e. only sanitary waste in the septic system. Information on septic systems can be found at Massachusetts Department of Environmental Protection's website <http://www.state.ma.us/dep/brp/files/yoursyst.htm>.
- ✓ **Proper Disposal** - Residents should dispose of used oil, antifreeze, paints, and other household chemicals properly - not in septic systems.

Residential Recommendations - Lawn Care and Landscaping:

- ✓ **Environmentally Sound Lawn Care** - Provide educational materials to residents about the proper application of pesticides or fertilizers. Landscape with native grasses, native flowering plants and trees and shrubs. Once established native plants require less water and may not require fertilizer, herbicides or pesticides use. Encourage the use of native plants and landscaping by establishing a demonstration area at a town facility. Information on environmentally sound lawn care practices can be obtained from the Massachusetts Department of Food and Agriculture Pesticide Bureau's website at <http://www.massdfa.org>.

Residential Recommendations - Heating Oil Tanks:

- ✓ **Underground Storage Tanks** - Target homeowners with underground storage tanks in Zone II for education and outreach.
- ✓ **Aboveground Storage Tanks** - Provide educational materials to residents regarding the proper storage of liquid petroleum products in aboveground storage tanks. The Department requires all Wellhead protection zoning and non zoning controls to prohibit the siting of liquid petroleum products storage in Zone II unless such storage is aboveground, on an impervious surface and either in a container or in an aboveground tank within a building, or in an area that has a containment system designed and operated to hold either 10 percent of the total possible storage capacity of all containers, or 110% of the largest container storage capacity whichever is greater. Consult with the local fire department for any additional local code requirements regarding aboveground storage tanks. A fact sheet on basement or outside oil tank can be obtained from the Barnstable County Department of Health And Environment at <http://www.CapeCod.net/bcdhe/oil/oil.htm>.

6. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 2-00160, 2-10019, 3-02098, 3-00049, 3-0001205, 3-0004757, 3-0000834, 3-0014625, 3-0012751, 3-0000565, 3-0001582, 3-0002739, 3-0002747, 3-0012928, 3-0000290, 3-0013453, 3-0016586, 3-0016587, 3-0014545, and 3-0016588. Refer to the attached map and Appendix 3 for more information.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Oil or Hazardous Material Contamination Sites – Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

7. Comprehensive Wellhead Protection Planning - Protection planning prevents drinking water contamination by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are numerous resources available to help communities in developing a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ **Prevent New Development in the Zone II** - The Chelmsford Water District should continue to purchase potentially developable land located within the existing wellhead protection areas and areas for use as future well sites.
- ✓ **Develop A Land Acquisition Plan** - Land acquisition projects protect water supplies by limiting the land development potential. Acquisitions can be accomplished by water systems through conservation restrictions, land banking, land purchases and land donations. Sample conservation restrictions are available at: <http://www.state.ma.us/dep/brp/dws/>. Future development of Zone II is a major concern. The Department recommends that the water district acquire Zone II land closest to the Zone I or land is subject high-risk development (refer to Developing a local Wellhead Protection Plan).

- ✓ **Local Controls** - Coordinate efforts with local officials in Billerica, Lowell and Westford to compare existing controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://www.state.ma.us/dep/brp/dws/>.
- ✓ **Inspection Program** - Develop and implement an Inspection Program for facilities that generate, use, store, or dispose of hazardous/toxic materials. Local Board of Health and Building Inspectors working on inspections often include floor drain and underground storage tanks. Local inspection programs can provide valuable technical assistance on Best Management Practices.
- ✓ **Develop a Wellhead Protection Plan** – Establish a local team, and refer them to <http://www.state.ma.us/dep/brp/dws/> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.

Other land uses and activities that may be potential contaminant sources include auto body shops, gas stations, and schools. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential contaminant sources is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination.

Once potential contaminant sources are identified, specific recommendations like those below should be used to better protect the Chelmsford wells.

Section 3: Source Water Protection

Implementing source protection measures and Best Management Practices (BMPs) will reduce the Chelmsford Water District System’s susceptibility to contamination. Additional source protection recommendations are listed in Table 3 and the Key Issues above.

Chelmsford Water District is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Providing outreach information through the “Chelmsford Water District Consumer Outreach Program”
- Purchasing land for the purpose of wellhead protection and new source development
- Coordinating efforts with the Planning Board for approval of projects in the Aquifer Protection District

Appendix 1 includes specific recommendations for each of the following:

➤ **Partner with Local Businesses:**

Since many small businesses and industries use hazardous materials and produce hazardous waste products, it is essential to educate the business community about drinking water protection. Encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

For More Information

Contact Anita Wolovick in DEP’s Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

➤ **Provide Outreach to the Community:**

Public education and community outreach ensure the long-term protection of drinking water supplies. Awareness often generates community cooperation and support. Residents and business owners are more likely to change their behavior if they know where the wellhead protection recharge area is located; what types of land uses and activities pose threats; and how their efforts can enhance protection.

➤ **Plan for the Future:**

One of the most effective means of protecting water supplies is planning, such as the adoption of local controls to protect watersheds and ground water. These controls may include health regulations, general ordinances, and zoning bylaws that prohibit potential sources of contamination from wellhead protection areas.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. These recommendations are only part of your ongoing local drinking water source protection.

Section 4: Additional Resources Available for Source Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The assessment and protection recommendations in this SWAP report are provided as a tool to spur community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

The Chelmsford Water District should supplement this SWAP report with local information on potential sources of contamination and land uses. To aid in the protection of the wells, local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Funding Resources:

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing Water Supply Source Protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. For additional information, please refer to the program fact sheet from this year. Please note: each spring DEP posts a new Request for Response for the Grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm>.

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Section 5: Appendices

1. Protection Recommendations
2. Regulated Facilities within the Water Supply Protection Area
3. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
4. Additional Documents on Source Protection in Chelmsford

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES	Continue monitoring non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21 (2)?	YES	The Town "Aquifer Protection District" bylaw meets DEP's best efforts for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	YES	The Town of Westford has included Chelmsford's Zone II in their source protection bylaw. Request that municipal officials in Lowell and Billerica develop land use restrictions that meet 310 CMR 22.21(2).
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Currently, the Board of Health and the Chelmsford Fire Department requires all commercial and industrial buildings to have a list of all hazardous materials and MSDS sheets on file with them, and to conduct inspections. The town is encouraged to continue this program, and to include municipal facilities. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc .
Does the PWS provide wellhead protection education?	YES	Aim additional efforts at commercial, industrial and municipal uses within the Zone II.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
East Chelmsford Water District

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	East Chelmsford Water District
<i>PWS Address</i>	75 Canal Street
<i>City/Town</i>	East Chelmsford, Massachusetts
<i>PWS ID Number</i>	3056001
<i>Local Contact</i>	Robert Conroy - Water Superintendent
<i>Phone Number</i>	978-453-0121

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

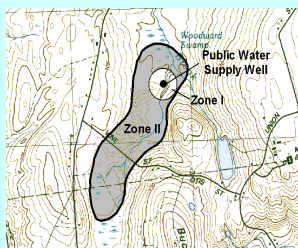
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Table 2: Water Supply Protection Areas

Zone II #: 283

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Canal Street G.P. Well #1	3056001-01G
Canal Street G.P. Well #2	3056001-02G

The wells for the East Chelmsford District are located at the southeasterly end of Canal Street, to the east of the Route 3 interchange to the Lowell Connector and Route 495, and to the east of Hales Brook. Both wells have a Zone I radius of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

Both Canal Street Well #1 and Canal Street Well #2 receive the following treatment: greensand filtration for iron removal; potassium permanganate added for manganese removal, potassium hydroxide added for corrosion control; orthophosphate added for corrosion control; and, sodium hypochlorite added as a disinfectant.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone II for East Chelmsford is a mixture of forested, residential, open land, commercial, and light industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key issues include:

1. Transportation Corridor
2. Local Businesses
3. Stormwater Catch Basins
4. Oil or Hazardous Material Contamination Sites
5. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for East Chelmsford is high, based on the presence of at least one high threat land use within the Zone II, as seen in Table 2.

1. Transportation Corridor - Route 3 runs through the Zone II just south of East Chelmsford's two (2) Canal Street Wells. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. De-icing salt washes off into storm drains or onto adjacent ground. In addition, roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

Transportation Corridor - Recommendations:

- ✓ **Low Salt Areas** - Join efforts with the other Chelmsford water districts to submit a formal request to MA Highway Department and the Town of Chelmsford in establishing Low Salt Areas along Route 3 and local roads. Encourage both organizations to educate employees and private contractors of the restrictions in designated Low Salt Areas.
- ✓ **Design and Best Management Practices** – Continue working with Massachusetts Highway Department and its contractors to design a stormwater drainage system along Route 3, north and south bound lanes that would discharge storm water outside of the Zone II. Design catch basins and develop best management practices (BMPs) to prevent runoff from becoming polluted, and where it is polluted, to reduce the amount that reaches surface waters.
- ✓ **Planning and Developing** - Notify town officials of EPA's Intermodal Surface Transportation Efficiency Act. The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 contains provision for the planning and developing of highway systems and transportation enhancement activities, including the mitigation of water pollution due to highway runoff. Through ISTEA, states are able to use a portion of their federal funding allotment for runoff pollution control devices and other BMPs to prevent polluted runoff from reaching lakes, rivers, and bays.

2. Local Businesses – Because many small businesses and industries use hazardous materials, produce hazardous waste products, and often store large quantities of petroleum products, there is the potential for degrading water quality. Educating the business community about drinking water protection, and encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

Local Businesses - Recommendations:

- ✓ **Hazardous Materials Program** - Support the development and implementation of a hazardous materials program that includes a Bylaw or Health Regulation. 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. See DEP's website for additional information on developing a

program for hazardous materials management at <http://www.state.ma.us/dep/brp/dws/files/hazmat.doc>

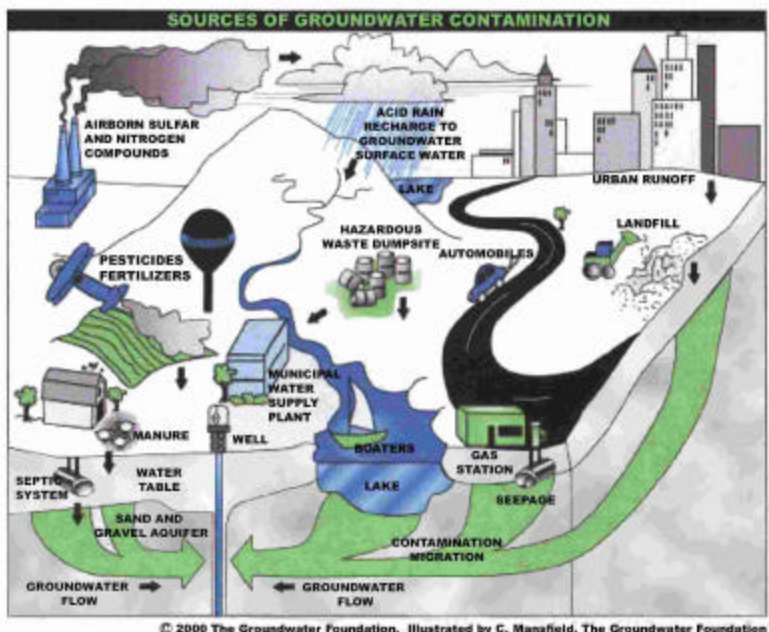
- ✓ **Inspection Program** – Coordinate efforts with local officials and the other water districts in the development and implementation of an Inspection Program which is usually conducted by the local Board of Health to prevent hazardous substances from entering water supplies. Inspections target facilities that generate, use, store, or disposal of hazardous/toxic materials. Programs can also include floor drain inspections and underground storage tanks. Local inspection programs often provide educational material and technical assistance on Best Management Practices. Building Inspectors are often involved in local inspection programs.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



- ✓ **Hazardous Materials Best Management Practices** - Work with local businesses to encourage training on proper hazardous material use, disposal, and emergency response. Refer to the attached list of resources for more information on hazardous material BMPs.
- ✓ **Storage Tanks** - Support your local fire department in upgrading all above and below ground oil/hazardous material storage tanks in order to meet current construction standards. Funding for replacing underground storage tanks is available through the MA Department of Revenue. For more information, refer to http://www.dor.state.ma.us/ust/ust_home.htm
- ✓ **Register Hazardous Waste Generators** - Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil.



- ✓ **Monitor Land Uses** - Work with the Selectmen, Board of Health and Planning Board to monitor land uses within and proximal to the Zone II. Refer to the Wellhead Protection Plan guidance and model bylaws at <http://www.state.ma.us/dep/brp/dws/files/whplan.doc> for types of activities that should be prohibited and managed in the vicinity of public or private water supplies.
- ✓ **Lawn care and Landscaping** - Encourage local businesses to incorporate Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides. For more information, see http://www.massdfa.org/pesticides/publications/IPM_kit_for_bldg_mgrs.pdf
- ✓ **Office of Technical Assistance** - For additional help regarding environmental requirements and toxic use reduction approaches to compliance contact the Office of Technical Assistance (OTA) for Toxic Use Reduction. The OTA is a nonregulatory agency within the Commonwealth's Executive Office of Environmental Affairs. OTA provides free, confidential assistance on toxic use reduction opportunities. <http://www.state.ma.us/ota/>

3. Stormwater Catch Basins – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

Stormwater Catch Basins - Recommendations

- ✓ **Inspect, Maintain, and Clean** - Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Additionally, street and parking lot sweeping reduces the amount of potential contaminants in runoff. Note: Catch basin cleanings are classified as solid waste by DEP and must be handled and disposed in accordance with all regulations, policies, and guidance. In the absence of written approval from DEP, catch basin cleanings must be taken to a facility permitted by DEP to accept solid waste. For information on DEP's Nonpoint Competitive Grants Program Upcoming Funding Opportunity refer to: <http://www.state.ma.us/dep/brp/mf/nfpubs.htm#wpa>.
- ✓ **Best Management Practices** - Work with the Town to develop Best Management Practices that are the most effective, practical means of preventing or reducing pollution from nonpoint sources. Information is available at <http://www.epa.gov/OWOW/NPS/roads.html>.
- ✓ **Local Controls** - Encourage local officials to develop a local stormwater ordinance. For more information see <http://www.epa.gov/owow/nps/ordinance/stormwater.htm>.
- ✓ **Storm Drain Stenciling Program** - Work with local watershed groups to institute a Storm Drain Stenciling Program. For more information on how to develop a storm drain stenciling program go to <http://www.earthwater-stencils.com>

What are "BMPs?"

Best Management Practices are structural (i.e. oil & grease trap catch basins), nonstructural (i.e. hazardous waste collection days) or managerial measures that are used to protect and improve surface water and groundwater quality.

- ✓ **Stormwater Planning** - Encourage local officials to become familiar with and begin to implement a stormwater management program to meet DEP's Phase II Storm Water Regulations. For additional information, refer to the Stormwater Management Information at <http://www.state.ma.us/dep/brp/ww/wwpubs.htm#storm>.

4. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0001205, 3-0004757, 3-0000834, 3-0014625, 3-0012751, 3-0000565, 3-0001582, 3-0002739, 3-0002747, 3-0012928, 3-0000290, 3-0013453, 3-0016586, 3-0016587, 3-0014545, and 3-0016588. Refer to the attached map and Appendix 3 for more information.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix 2: Regulated Facilities within the Water Supply Protection Area

Activities	Zone II #283	Threat*	Potential Source of Contamination
Agricultural			
Fertilizer Storage or Use	1	M	Fertilizers: leaks, spills, improper handling, or over-application
Manure Storage or Spreading	2	H	Manure (microbial contaminants): improper handling
Nurseries	1	M	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling or over application
Commercial			
Body Shops	1	H	Vehicle paints, solvents, and primer products: improper management
Car/Truck/Bus Washes	2	L	Vehicle wash water, soaps, oils, greases, metals, and salts: improper management
Gas Stations	9	H	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	2	H	Automotive fluids, and solvents: spills, leaks, or improper handling
Bus and Truck Terminals	3	H	Fuels and maintenance chemicals: spills, leaks, or improper handling
Cemeteries	2	M	Pesticides: improper handling or over-application of, leaks or spills, and historic embalming fluids
Dry Cleaners	2	H	Solvents and wastes: spills, leaks, or improper handling
Junk Yards and Salvage Yards	1	H	Automotive chemicals, wastes, and batteries: spills, leaks, or improper handling
Laundromats	1	L	Wash water: improper management
Medical Facilities	1	M	Biological, chemical, and radioactive wastes: spills, leaks, or improper handling or storage
Photo Processors	2	H	Photographic chemicals: spills, leaks, or improper handling or storage
Printer And Blueprint Shops	1	M	Printing inks and chemicals: spills, leaks, or improper handling or storage

Activities	Zone II #283	Threat*	Potential Source of Contamination
Repair Shops (Engine, Appliances, Etc.)	1	H	Engine fluids, lubricants, and solvents: spills, leaks, or improper handling or storage
Industrial			
Asphalt, Coal Tar, And Concrete Plants	1	M	Hazardous chemicals and wastes: spills, leaks, or improper handling or storage
Chemical Manufacture Or Storage	2	H	Chemicals and process wastes: spills, leaks, or improper handling or storage
Electronics/Electrical Manufacturers	Numerous	H	Chemicals and process wastes: spills, leaks, or improper handling or storage
Electroplaters	1	H	Solvents and other chemicals: spills, leaks, or improper handling or storage
Foundries Or Metal Fabricators	1	H	Solvents and other chemicals: spills, leaks, or improper handling or storage
Fuel Oil Distributors	2	H	Fuel oil: spills, leaks, or improper handling or storage
Industry/Industrial Parks	2	H	Industrial chemicals and metals: spills, leaks, or improper handling or storage
Machine/Metalworking Shops	7	H	Solvents and metal tailings: spills, leaks, or improper handling
Residential			
Fuel Oil Storage (at residences)	Numerous	M	Fuel oil: spills, leaks, or improper handling
Lawn Care / Gardening	Numerous	M	Pesticides: over-application or improper storage and disposal
Miscellaneous			
Aboveground Storage Tanks	8±	M	Materials stored in tanks: spills, leaks, or improper handling
Aquatic Wildlife	Numerous	L	Microbial contaminants
Large Quantity Hazardous Waste Generators	2	H	Hazardous materials and waste: spills, leaks, or improper handling or storage
NPDES Locations	1	L	Hazardous material and wastes: improper disposal
Oil or Hazardous Material Sites	16	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Pipeline (Oil or Sewer)	5	M	Oil or sewage: spills or leaks
Schools, Colleges, and Universities	2	M	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage

Activities	Zone II #283	Threat*	Potential Source of Contamination
Small quantity hazardous waste generators	12	M	Hazardous materials and waste: spills, leaks, or improper handling or storage
Stormwater Drains/ Retention Basins	Numerous/1	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way - Type: <u>electric</u>	2	L	Corridor maintenance pesticides: over-application or improper handling; construction
Transportation Corridors	2	M	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling
Underground Storage Tanks	35±	H	Stored materials: spills, leaks, or improper handling
Very Small Quantity Hazardous Waste Gen-	13	L	Hazardous materials and waste: spills, leaks, or improper handling or storage
Wastewater Treatment Plant/Collection Facility/ Lagoon	3	M	Treatment chemicals or equipment maintenance materials: improper handling or storage; wastewater: improper management
Water Treatment Sludge Lagoon	1	M	Sludge and wastewater: improper management
Water Supply Protection Area % that is Sewered = 100%			
<p>Notes:</p> <ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>			

Oil or Hazardous Material Contamination Sites – Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

7. Comprehensive Wellhead Protection Planning - Protection planning prevents drinking water contamination by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are numerous resources available to help communities in developing a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ **Prevent New Development in the Zone II** - The East Chelmsford Water District should continue to purchase potentially developable land located within the existing wellhead protection areas and areas for use as future well sites.

- ✓ **Develop A Land Acquisition Plan** - Land acquisition projects protect water supplies by limiting the land development potential. Acquisitions can be accomplished by municipal water systems through conservation restrictions, land banking, land purchases and land donations. Sample conservation restrictions are available at: <http://www.state.ma.us/dep/brp/dws/>. Future development of Zone II is a major concern. The Department recommends that the water district acquire Zone II land closest to the Zone I or land is subject high-risk development (refer to Developing a local Wellhead Protection Plan).
- ✓ **Local Controls** - Coordinate efforts with local officials in Billerica and Lowell to compare existing controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://www.state.ma.us/dep/brp/dws/>.
- ✓ **Inspection Program** - Develop and implement an Inspection Program for facilities that generate, use, store, or dispose of hazardous/toxic materials. Local Board of Health and Building Inspectors working on inspections often include floor drain and underground storage tanks. Local inspection programs can provide valuable technical assistance on Best Management Practices.
- ✓ **Develop a Wellhead Protection Plan** – Establish a local team, and refer them to <http://www.state.ma.us/dep/brp/dws/> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.

Other land uses and activities that may be potential contaminant sources include auto body shops, gas stations, and schools. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential contaminant sources is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination.

Once potential contaminant sources are identified, specific recommendations like those below should be used to better protect the East Chelmsford wells.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased groundwater monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Section 3: Source Water Protection

Implementing source protection measures and Best Management Practices (BMPs) will reduce the East Chelmsford Water Supply System’s susceptibility to contamination. Additional source protection recommendations are listed in Table 3 and the Key Issues above.

East Chelmsford is commended for taking an active role in promoting source protection measures in the East Chelmsford Water District through:

- ◆ Coordinating source protection efforts with the Planning Board and Conservation Commission
- ◆ Reviewing proposals for projects presented to the Planning Board to assure compliance with local source protection controls

Appendix 1 includes specific recommendations for each of the following:

➤ **Partner with Local Businesses:**

Since many small businesses and industries use hazardous materials and produce hazardous waste products, it is essential to educate the business community about drinking water protection. Encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

➤ **Provide Outreach to the Community:**

Public education and community outreach ensure the long-term protection of drinking water supplies. Awareness often generates community cooperation and support. Residents and business owners are more likely to change their behavior if they know where the wellhead protection recharge area is located; what types of land uses and activities pose threats; and how their efforts can enhance protection.

➤ **Plan for the Future:**

One of the most effective means of protecting water supplies is planning, such as the adoption of local controls to protect watersheds and ground water. These controls may include health regulations, general ordinances, and zoning bylaws that prohibit potential sources of contamination from wellhead protection areas.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. These recommendations are only part of your ongoing local drinking water source protection.

Section 4: Additional Resources Available for Source Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The assessment and protection recommendations in this SWAP report are provided as a tool to spur community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

The East Chelmsford Water District should supplement this SWAP report with local information on potential sources of contamination and land uses. To aid in the protection of the wells, local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Funding Resources:

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing Water Supply Source Protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. For additional information, please refer to the program fact sheet from this year. Please note: each spring DEP posts a new Request for Response for the Grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm>.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Section 5: Appendices

1. Protection Recommendations
2. Regulated Facilities within the Water Supply Protection Area
3. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
4. Data Sources and Additional Documents on Source Protection in East Chelmsford

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES	Continue monitoring non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town of Chelmsford's "Aquifer Protection District" bylaw meets 310 CMR 22.21(2), however, there is no provision in Chelmsford for existing floor drains. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	NO	Request that municipal officials in Lowell and Billerica develop land use restrictions that meet 310 CMR 22.21(2).
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Currently, the Board of Health and the Chelmsford Fire Department requires all commercial and industrial buildings to have a list of all hazardous materials and MSDS sheets on file with them, and to conduct inspections. The town is encouraged to continue this program, and to include municipal facilities. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	YES	Aim additional efforts at commercial, industrial and municipal uses within the Zone II.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
North Chelmsford Water District

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	North Chelmsford Water District
<i>PWS Address</i>	Washington Street
<i>City/Town</i>	Chelmsford, Massachusetts
<i>PWS ID Number</i>	3056002
<i>Local Contact</i>	Bruce Harper - Water Superintendent
<i>Phone Number</i>	978-251-3931

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

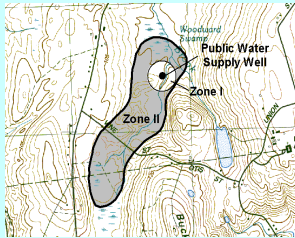
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

Zone II #: 284

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Bomil Well #1	3056002-01G
Bomil Well #2	3056002-02G
Bomil Well #3	3056002-03G
Bomil Well #4	3056002-04G

The wells for the North Chelmsford Water District are located on the West Side of Richardson Road opposite the Town of Chelmsford DPW garages. Each well has a Zone I of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II. All four Bomil wells have potassium hydroxide added for corrosion control, and Bomil Wells #3 and #4 have sodium hypochlorite added as a disinfectant.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Discussion of Land Uses in the Protection Areas

The Zone II for North Chelmsford is a mixture of residential, commercial, and light industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key issues include:

1. Improper Salt Storage and Road Salting
2. Transportation Corridor
3. Railroad Right Of Way
4. Stormwater Catchbasins
5. Oil or Hazardous Material Contamination Sites
6. Department of Public Works Facility
7. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for North Chelmsford is high, based on the presence of at least one high threat land use within the Zone II, as seen in Table 2.

1. Improper Salt Storage – Improperly stored road salt has the potential to contaminate public and private drinking water supplies. When salt is stockpiled outside or improperly contained in sheds, precipitation can carry high levels of salt to surrounding soil and water.

Improper Salt Storage - Recommendations:

- ✓ **Relocation of Storage Facility** - Encourage the Town of Chelmsford Board of Selectmen to relocate the Department of Public Works Maintenance Facility to a more suitable location outside of the delineated Zone II and the Town of Chelmsford's "Aquifer Protection District".

Also, encourage Massachusetts Highway Department to consider relocating District Four Highway Maintenance Facility outside of the Zone II and Aquifer Protection District.

- ✓ **Storage Structure** - Continue to work with Massachusetts Highway Department to address adequately covering the salt piles at its facility on Western Avenue. Request a specific timeframe from the Massachusetts Highway Department by which the salt sheds will be covered in such a way as to prevent leachate and runoff.
- ✓ **Best Management Practices** - Encourage the Massachusetts Highway Department and the Town of Chelmsford Department of Public Works to develop best management practices to insure proper salt storage, including enforcement of any existing “low salt policies”, proper maintenance of facilities and good housekeeping practices. Review the Department of Environmental Protection’s Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.

2. Transportation Corridor - Route 3 runs through the Zone II just south of North Chelmsford's four (4) Bomil Wells. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. De-icing salt washes off into storm drains or onto adjacent ground. In addition, roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

Transportation Corridor - Recommendations:

- ✓ **Low Salt Areas** - Join in efforts with the other water districts to submit a formal request to MA Highway Department and the Town of Chelmsford in establishing Low Salt Areas along Route 3 and local roads. Encourage both organizations to educate employees and private contractors of the restrictions in designated Low Salt Areas.
- ✓ **Design and Best Management Practices** – Continue working with Massachusetts Highway Department and its contractors to design a stormwater drainage system along Route 3, north and south bound lanes, that discharge stormwater outside of the Zone II from Drum Hill Rotary to a point downstream of the North Chelmsford Water District.

- ✓ **Planning and Developing** - Notify town officials of EPA’s Intermodal Surface Transportation Efficiency Act. The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 contains provision for the planning and developing of highway systems and transportation enhancement activities, including the mitigation of water pollution due to highway runoff. Through ISTEA, states are able to use a portion of their federal funding allotment for runoff pollution control devices and other BMPs to prevent polluted runoff from reaching lakes, rivers, and bays.

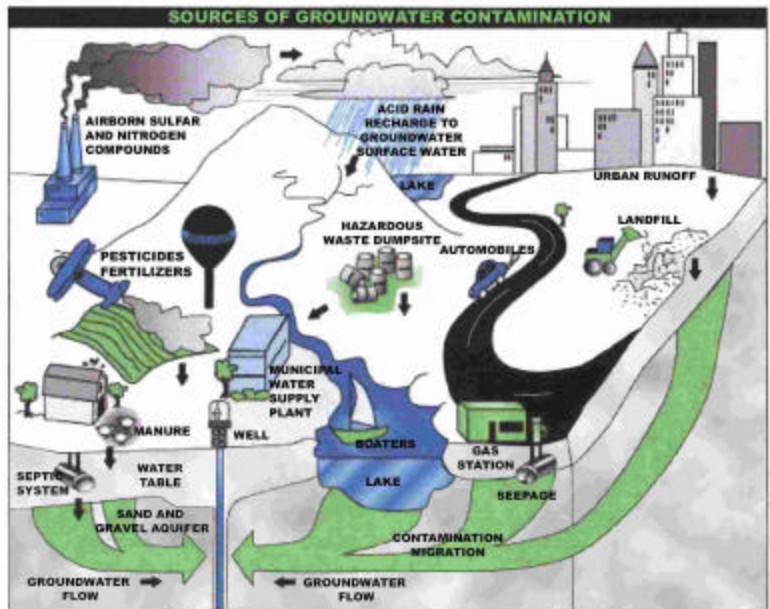
3. Railroad Right-Of-Way – A railroad runs along the eastern edge of the Zone II of the Bomil Wells. Rail corridors serving passenger and/or freight trains are potential contaminant sources due to chemicals released during normal use, track maintenance, and accidents.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



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Over-application or improper handling of herbicides during railroad right-of-way maintenance is a potential source of contamination. Leaks or spills of transported chemicals or train maintenance chemicals are also potential sources of contamination to the water supply.



Railroad Right-of-Way - Recommendations:

- ✓ **Best Management Practices** - Work with local officials during their review of the railroad right-of-way Yearly Operating Plan to ensure Best Management Practices are implemented with regard to vegetation control in the Zone II, and that pesticides are not used in the Zone I.
- ✓ **Emergency Response Plan** - Work with your local fire department to review emergency response plans. Request that emergency response teams practice containment of potential contaminants from train accidents.

4. Stormwater Catch Basins – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

Stormwater Catch Basins – Recommendations:

- ✓ **Inspect, Maintain, and Clean** - Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Additionally, street and parking lot sweeping reduces the amount of potential contaminants in runoff. Note: Catch basin cleanings are classified as solid waste by DEP and must be handled and disposed in accordance with all regulations, policies, and guidance. In the absence of written approval from DEP, catch basin cleanings must be taken to a facility permitted by DEP to accept solid waste. For information on DEP’s Nonpoint Competitive Grants Program Upcoming Funding Opportunity refer to: <http://www.state.ma.us/dep/brp/mf/nfpubs.htm#wpa>.
- ✓ **Best Management Practices** - Work with the Town to develop Best Management Practices that are the most effective, practical means of preventing or reducing pollution from nonpoint sources. Information is available at <http://www.epa.gov/OWOW/NPS/roads.html>.
- ✓ **Local Controls** - Encourage local officials to develop a local stormwater ordinance. For more information see <http://www.epa.gov/owow/nps/ordinance/stormwater.htm>.
- ✓ **Storm Drain Stenciling Program** - Work with local watershed groups to institute a Storm Drain Stenciling Program. For more information on how to develop a storm drain stenciling program go to <http://www.earthwater-stencils.com>
- ✓ **Stormwater Planning** - Encourage local officials to become familiar with and begin to implement a stormwater management program to meet DEP’s Phase II Storm Water Regulations. For additional information, refer to the Stormwater Management Information at <http://www.state.ma.us/dep/brp/ww/wwpubs.htm#storm>.

5. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-02098 3-00049, 2-00160, 2-10019. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites – Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

What are "BMPs?"

Best Management Practices are structural (i.e. oil & grease trap catch basins), nonstructural (i.e. hazardous waste collection days) or managerial measures that are used to protect and improve surface water and groundwater quality.

6. Department of Public Works Facility - The potential for ground water contamination in municipal facilities is related to accidental dumps, accidental spills, and vehicle washing operations, or from wastewater treatment or left over product. Waste management and product storage processes pose the most prevalent threats to ground water, and a wide variety of potentially harmful constituents are involved in release incidents.

Department of Public Works Facility - Recommendations:

- ✓ Request that the town relocate the Richardson Road Department of Public Works facility to an area that is located outside the Zone II.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix 2: Regulated Facilities within the Water Supply Protection Area

Activities	Zone II # 284	Threat*	Potential Source of Contamination*
Agricultural			
Nurseries	1	M	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling or over application
Commercial			
Body Shops	-	H	Vehicle paints, solvents, and primer products: improper management
Car/Truck/Bus Washes	-	L	Vehicle wash water, soaps, oils, greases, metals, and salts: improper management
Gas Stations	1	H	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	3	H	Automotive fluids, and solvents: spills, leaks, or improper handling
Bus and Truck Terminals	-	H	Fuels and maintenance chemicals: spills, leaks, or improper handling
Cemeteries	1	M	Pesticides: improper handling or over-application of, leaks or spills, and historic embalming fluids
Dry Cleaners	-	H	Solvents and wastes: spills, leaks, or improper handling
Golf Courses	1	M	Fertilizers, pesticides, petroleum products and other chemicals: over-application or improper handling, spills, or leaks
Junk Yards and Salvage Yards	-	H	Automotive chemicals, wastes, and batteries: spills, leaks, or improper handling
Laundromats	-	L	Wash water: improper management
Medical Facilities	-	M	Biological, chemical, and radioactive wastes: spills, leaks, or improper handling or storage
Nursing Homes	2	L	Medical waste, cleaning compounds: microbial contaminants; improper handling, storage and disposal
Photo Processors	-	H	Photographic chemicals: spills, leaks, or improper handling or storage
Printer And Blueprint Shops	1	M	Printing inks and chemicals: spills, leaks, or improper handling or storage
Railroad Tracks And Yards	1	H	Herbicides, transported chemicals and maintenance chemicals; fuel storage: over-application or improper handling, leaks or spills

Activities	Zone II #284	Threat*	Potential Source of Contamination*
Repair Shops (Engine, Appliances, Etc.)	-	H	Engine fluids, lubricants, and solvents: spills, leaks, or improper handling or storage
Sand And Gravel Mining/Washing	1	M	Heavy equipment, fuel storage, clandestine dumping: spills or leaks
Industrial			
Asphalt, Coal Tar, And Con- crete Plants	-	M	Hazardous chemicals and wastes: spills, leaks, or improper handling or storage
Chemical Manufacture Or Storage	1	H	Chemicals and process wastes: spills, leaks, or improper handling or storage
Electronics/Electrical Manufacturers	-	H	Chemicals and process wastes: spills, leaks, or improper handling or storage
Electroplaters	-	H	Solvents and other chemicals: spills, leaks, or improper handling or storage
Foundries Or Metal Fabricators	-	H	Solvents and other chemicals: spills, leaks, or improper handling or storage
Fuel Oil Distributors	-	H	Fuel oil: spills, leaks, or improper handling or storage
Hazardous Materials Storage	1	H	Hazardous materials: spills, leaks, or improper handling or storage
Industry/Industrial Parks	-	H	Industrial chemicals and metals: spills, leaks, or improper handling or storage
Machine/Metalworking Shops	-	H	Solvents and metal tailings: spills, leaks, or improper handling
Residential			
Fuel Oil Storage (at residences)	Numerous	M	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Numerous	M	Household hazardous waste: improper disposal, and microbial contaminants
Miscellaneous			
Aboveground Storage Tanks	3	M	Materials stored in tanks: spills, leaks, or improper handling
Aquatic Wildlife and Pet Waste	Numerous	L	Microbial contaminants
Clandestine (Illegal) Dumping	1	H	Construction debris, household refuse: hazardous materials or wastes
Combined Sewer Overflows	1	L	Industrial wastewater, road run-off: microbial and non-microbial contaminants, and improper disposal of hazardous wastes
Large Quantity Hazardous Waste Generators	-	H	Hazardous materials and waste: spills, leaks, or improper handling or storage
NPDES Locations	-	L	Hazardous material and wastes: improper disposal
Oil or Hazardous Material Sites	4	----	Oil or hazardous materials and waste: spills, leaks, or improper handling or storage
Pipeline (Oil or Sewer)	-	M	Oil or sewage: spills or leaks

Activities	Zone II #284	Threat*	Potential Source of Contamination
Road And Maintenance Depots	2	M	Asphalt materials and other chemicals, aboveground and underground storage tanks with gasoline and diesel storage: spills, leaks, or improper handling of deicing materials
Salt or Deicing Material Storage	3	M	Deicing materials: improper handling and storage, run-off
Schools, Colleges, and Universities	1	M	Fuel oil, laboratory, art, photographic, machine shop, cleaning and other chemicals; over- application or improper management of fertilizers and pesticides on athletic fields; parking areas; spills, leaks, or improper handling
Small Quantity Hazardous Waste Generators	1	M	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way-Type: <u>electric</u>	1	L	Construction and corridor maintenance, over-application or improper handling of pesticides
Transportation Corridors	1	M	Fuels and other hazardous materials: accidental leaks or spills, over-application or improper handling of pesticides
Underground Storage Tanks	9	H	Petroleum products, potassium hydroxide (KOH)(water treatment chemical tanks are fiberglass and are in cement vaults); spills, leaks, or improper handling stored materials
Utility Substation Transformers	1	L	Fuels and other hazardous materials: spills, leaks, or improper handling
Very Small Quantity Hazardous Waste Generator	-	L	Hazardous materials and waste: spills, leaks, or improper handling or storage
Wastewater Treatment Plant/ Collection Facility/ Lagoon	2	M	Treatment chemicals or equipment maintenance materials: improper handling or storage; wastewater: improper management
Water Treatment Sludge Lagoon	1	M	Sludge and wastewater: improper management

Water Supply Protection Area % that is Sewered = 65%

Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

The following recommendations are made as interim measures while the town evaluates the feasibility of relocating the Richardson Road Department of Public Works facility:

- ✓ **Best management practices**—Modify designs of structural drainage systems to prevent lot draining into Cold Springs Brooks, which runs through North Chelmsford' Zone I hazardous materials storage, release response, vegetated buffer
- ✓ Suggest to the Public Works Facility director that they participate in EPA's voluntary program that provides incentives for discovering and correcting environmental violations at municipal vehicle maintenance facilities. More information can be obtained by visting EPA's website at <http://es.epa.gov/oeca/ore/apolguid.html>

7. Comprehensive Wellhead Protection Planning - Protection planning prevents drinking water contamination by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are numerous resources available to help communities in developing a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ **Prevent New Development in the Zone II** - The town should continue to purchase potentially developable land located within the existing wellhead protection areas and areas for use as future well sites.
- ✓ **Develop A Land Acquisition Plan** - Land acquisition projects protect water supplies by limiting the land development potential. Acquisitions can be accomplished by municipal water systems through conservation restrictions, land banking, land purchases and land donations. Sample conservation restrictions are available at: <http://www.state.ma.us/dep/brp/dws/>. Future development of Zone II is a major concern. The Department recommends that the water district acquire Zone II land closest to the Zone I or land is subject high-risk development (refer to

Developing a local Wellhead Protection Plan).

- ✓ **Local Controls** - Coordinate efforts with local officials in Brewster and Chatham to compare existing controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://www.state.ma.us/dep/brp/dws/>.
- ✓ **Inspection Program** - Develop and implement an Inspection Program for facilities that generate, use, store, or dispose of hazardous/toxic materials. Local Board of Health and Building Inspectors working on inspections often include floor drain and underground storage tanks. Local inspection programs can provide valuable technical assistance on Best Management Practices.
- ✓ **Develop a Wellhead Protection Plan** – Establish a local team, and refer them to <http://www.state.ma.us/dep/brp/dws/> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan".

Other land uses and activities that may be potential contaminant sources include auto body shops, gas stations, and schools. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential contaminant sources is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination.

Once potential contaminant sources are identified, specific recommendations like those below should be used to better protect the North Chelmsford wells.

Section 3: Source Water Protection

Implementing source protection measures and Best Management Practices (BMPs) will reduce the North Chelmsford Water Supply System's susceptibility to contamination. Additional source protection recommendations are listed in Table 3 and

Top 5 Reasons to Develop a Local Wellhead Protection Plan	
1	Reduces Risk to Human Health
2	Cost Effective! Reduces or Eliminates Costs Associated With: <ul style="list-style-type: none">♦ Increased groundwater monitoring and treatment♦ Water supply clean up and remediation♦ Replacing a water supply♦ Purchasing water
3	Supports municipal bylaws, making them less likely to be challenged
4	Ensures clean drinking water supplies for future generations
5	Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

the Key Issues above.

North Chelmsford is commended for taking an active role in promoting source protection measures in the North Chelmsford Water District through:

- The acquisition of 4.25 acres on Cold Springs Brook, behind the Richardson Road Department of Public Works facility.
- Taking an active role in reducing sodium levels in the Bomil Wells by working with the Mass Highway Department on the Route 3 expansion project and on the salt storage facility.
- Containing the fiberglass underground potassium hydroxide (a water treatment plant chemical) tanks at the Bomil Wells within cement vaults.

Appendix 1 includes specific recommendations for each of the following:

➤ **Partner with Local Businesses:**

Since many small businesses and industries use hazardous materials and produce hazardous waste products, it is essential to educate the business community about drinking water protection. Encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

➤ **Provide Outreach to the Community:**

Public education and community outreach ensure the long-term protection of drinking water supplies. Awareness often generates community cooperation and support. Residents and business owners are more likely to change their behavior if they know where the wellhead protection recharge area is located; what types of land uses and activities pose threats; and how their efforts can enhance protection.

➤ **Plan for the Future:**

One of the most effective means of protecting water supplies is planning, such as the adoption of local controls to protect watersheds and ground water. These controls may include health regulations, general ordinances, and zoning bylaws that prohibit potential sources of contamination from wellhead protection areas.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection

measures. These recommendations are only part of your ongoing local drinking water source protection.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Section 4: Additional Resources Available for Source Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The assessment and protection recommendations in this SWAP report are provided as a tool to spur community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

The Chelmsford Water District should supplement this SWAP report with local information on potential sources of contamination and land uses. To aid in the protection of the wells, local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Funding Resources:

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing Water Supply Source Protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. For additional

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES	Continue monitoring non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town "Aquifer Protection District" bylaw meets DEP's best efforts for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	YES	
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	YES	Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

information, please refer to the program fact sheet from this year. Please note: each spring DEP posts a new Request for Response for the Grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm>.

Section 5: Appendices

1. Protection Recommendations
2. Regulated Facilities within the Water Supply Protection Area
3. Data Sources and Additional Documents on Source Protection in North Chelmsford

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Cohasset Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Cohasset Water Department
<i>PWS Address</i>	339 King Street
<i>City/Town</i>	Cohasset, Massachusetts 02025
<i>PWS ID Number</i>	3065000
<i>Local Contact</i>	George F. Hawksley
<i>Phone Number</i>	(781) 383-0057

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

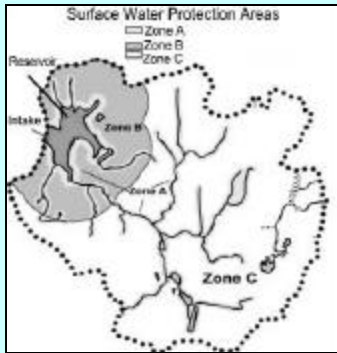
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Section 1: Description of the Water System

Surface Water Sources

Source Name	Source ID #	Susceptibility
Aaron River Reservoir	3065000-01S	High
Lily Pond	3065000-02S	High

The reservoirs for the Cohasset Water Department are located within a continuous water supply protection area, with portions extending into the towns of Hingham, Norwell, and Scituate. The Town is presently seeking to reactivate the Ellms Meadow Wellfield.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

Cohasset's watershed lands are primarily a mixture of forest and residential land use, with smaller portions consisting of cropland, commercial, and industrial land uses, sand and gravel mining, and other land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone A
2. Residential Land Uses
3. Transportation Corridors
4. Hazardous Materials Storage and Use
5. Agricultural Activities
6. Oil or Hazardous Material Contamination Sites
7. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone A - Land use activities within Cohasset's Zone As which, if managed improperly may have an impact on surface water sources include: numerous homes with on-site septic systems; residential storage of heating oil; local roads; chemical storage; and stormwater runoff. Wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.

Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

Glossary Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

- ✓ Identify stormwater drains and the drainage system along transportation corridors. Work to better manage stormwater by pre-treating contaminated stormwater and/or redirecting stormwater outside of the Zone A.

2. Residential Land Uses – Approximately 12% of the water supply protection area consists of residential areas. Some of the areas have public sewers, and some use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

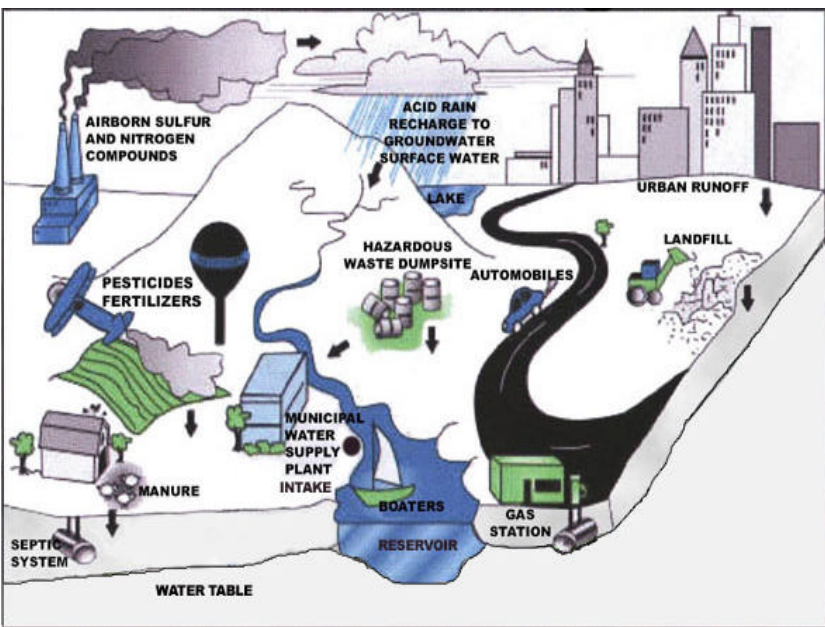
Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.

3. Transportation Corridors - State and local roads are common in the water supply protection areas. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.



MODIFIED FROM © 2000 The Groundwater Foundation. Illustrated by C. Mansfield, The Groundwater Foundation

Figure 1: Sample watershed with examples of potential sources of contamination

Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include contaminants from automotive leaks, maintenance, washing, or accidents.

Railroad tracks run through the watershed. Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals.

Transportation Corridor Recommendations:

- ✓ Regularly inspect watersheds for illegal dumping and spills.

- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Promote BMPs for stormwater management and pollution controls.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

4. Hazardous Materials Storage and Use – A small portion of the water supply protection areas for Cohasset contains commercial or industrial land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
 - ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

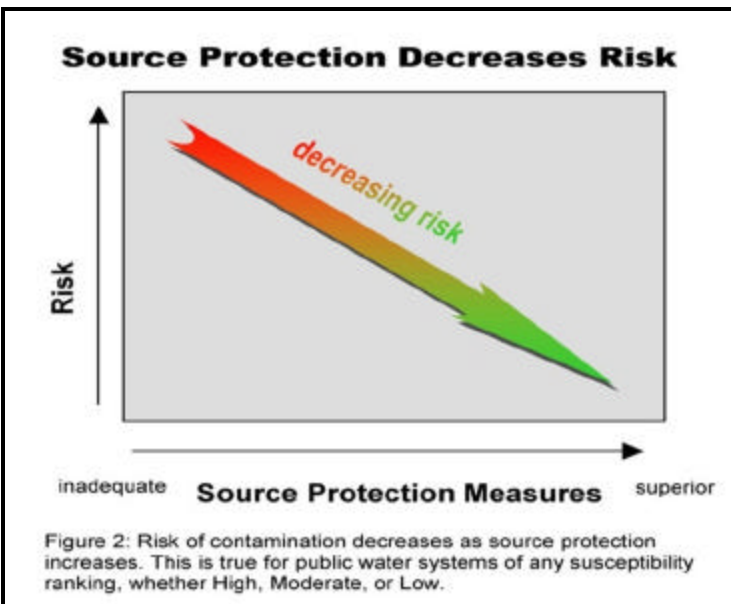
**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

5. Agricultural Activities – Approximately 1% of the water supply protection areas are crop land and pasture land, with other agricultural land uses. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.



Agricultural Activities Recommendations:

- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ Encourage the farmers to incorporate an Integrated Pest Management (IPM) approach into their pest management program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone C Source ID #	Potential Contaminant Sources*
Agricultural				
Nurseries	1	M	01S	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Commercial				
Body Shops	1	H	01S	Improper management of vehicle paints, solvents, and primer products
Service Stations/ Auto Repair Shops	2	H	01S	Spills, leaks, or improper handling of automotive fluids, and solvents
Cemeteries	2	M	01S	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Repair Shops (Engine, Appliances, etc.)	1	H	02S	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Industrial				
Hazardous Materials Storage	2	H	02S	Spills, leaks, or improper handling or storage of hazardous materials
Residential				
Fuel Oil Storage (at residences)	Numerous	M	01S, 02S	Spills, leaks, or improper handling of fuel oil
Lawn Care/ Gardening	Numerous	M	01S, 02S	Over-application or improper storage and disposal of pesticides
Septic Systems/ Cesspools	Numerous	M	01S, 02S	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous				
Aquatic Wildlife	Numerous	L	01S, 02S	Microbial contaminants
Landfills and Dumps	2	H	01S, 02S	Seepage of leachate
Military Facilities (Past And Present)	3	H	01S, 02S	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump

Land Uses	Quantity	Threat	Zone C Source ID #	Potential Contaminant Sources*
Miscellaneous				
Oil or Hazardous Material Sites	4	--	01S, 02S	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	02S	Spills, leaks, or improper handling or storage of de-icing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	2	M	02S	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	1	M	02S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/Retention Basins	1	L	02S	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way: <u>electric</u>	1	L	01S, 02S	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	1	M	02S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	1	H	02S	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	2	L	02S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Wastewater Treatment Plant/Collection Facility/Lagoon	1	M	02S	Improper handling or storage of treatment chemicals or equipment maintenance materials; improper management of wastewater
Water Treatment Sludge Lagoons	1	M	02S	Improper management of sludge and wastewater
<p>Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

- ✓ Promote Best Management Practices (BMPs) for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Work with farmers and nurseries to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.

6. Presence of Oil or Hazardous Material Contamination Site – The water supply protection area contains four MADEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Numbers 3-0003833, 3-0020078, 3-0020682 and 3-0021613. Refer to the attached map and Appendix C for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination site.

7. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir. The Town of Cohasset amended its Water Resource District Zoning Overlay District, and adopted Zone A land use controls to meet DEP’s Surface Water Protection regulations 310 CMR 22.20 (b) and (c). Surface Water Supply Protection Plans coordinate community efforts, identify protection strategies, establish a timeframe for implementation, and provide a forum for public participation. There are resources available to help communities develop plans for protecting drinking water supply sources.

Protection Planning Recommendations:

- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Other land uses and activities within the water supply protection areas that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination.

Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system’s watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Mapping storm drains for the purpose of prioritizing locations for Phase II stormwater management.
- Conducting a study on the health of Lily Pond.
- Taking preliminary steps to develop a lawn care program.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Inspect Zone As regularly, and when feasible, remove any prohibited activities.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your watershed and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone A?	Approximately 54% of the combined Zone As is owned or controlled	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials. To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements.
Is the Zone A posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	NO	Implement daily inspections of drinking water protection areas.
Are water supply -related activities the only activities within the Zone A?	NO	Monitor prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C?	Adopted	Submit land use controls to DEP for review and approval. For more information, contact Kathy Romero at (617) 292-5727.
Do neighboring communities protect the water supply protection areas extending into their communities?	Some	Work with the Town of Hingham to include Cohasset's watershed in their protection controls. Submit land use controls adopted by Norwell and Situate to DEP for review.
Planning		
Does the PWS have a local surface water protection plan?	YES	Approved by DEP June 2002. Implement surface water supply protection plan. Follow "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	YES (not active)	Reconvene committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	SOME	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone C.

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Implement the town's Surface Water Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watershed and Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Regulated Facilities within the Water Supply Protection Area
- B. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- C. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's NERO at (617) 654-6535 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APENDIX A: DEP PERMITTED FACILITIES WITHIN COHASSET WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
340164	BROWNS FOREIGN IMPORTS	574 CHIEF JUSTICE CUSHING HIGHWAY	COHASSET	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
340105	COHASSET IMPORTS INC.	508 CHIEF JUSTICE CUSHING HIGHWAY	COHASSET	HANDLER	VERY SMALL QUANTITY GENERATOR
340105	COHASSET IMPORTS INC.	508 CHIEF JUSTICE CUSHING HIGHWAY	COHASSET	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
5172	COHASSET WATER TREATMENT PLANT	339 KING ST	COHASSET	SURFACE DISCHARGE	SURFACEWATER MINOR

UNDERGROUND STORAGE TANKS WITHIN COHASSET WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
NONE NOTED	--	--	--	--	--

For more information on underground storage tanks, visit the Massachusetts department of fire services web site:

<http://www.state.ma.us/dfs/ust/usthome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Cohasset Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0003833	Leavitt St. - Hingham Annex	Hingham	Oil and Hazardous Material
3-0020078	Doane St.	Cohasset	Hazardous Material
3-0020682	Union St. Wompatuck State Park	Hingham	Hazardous Material
3-0021613	Crocker Lane	Cohasset	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Concord Water Division

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Concord Water Division
<i>PWS Address</i>	135 Keyes Road
<i>City/Town</i>	Concord, Massachusetts 01742
<i>PWS ID Number</i>	3067000
<i>Local Contact</i>	Alan Cathcart
<i>Phone Number</i>	(978) 318-3250

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

Groundwater Sources

<i>Well Name</i>	<i>Source ID#</i>
Zone II #: 375	
Jennie Dugan Well	3067000-01G
Zone II #: 374	
Deaconess Well	3067000-03G
Zone II #: 376	
White Pond Well	3067000-04G
Zone II #: 373	
Second Division Well	3067000-05G
Zone II #: 372	
Robinson Well	3067000-06G
Zone II #: 479	
Hugh Cargill Wellfield	3067000-07G

Surface Water Sources

<i>Source Name</i>	<i>Susceptibility: High</i>
Nagog Pond	3067000-01S

The wells for the Concord Water Division are located within six separate water supply protection areas, with portions of the protection areas extending into the towns of Lincoln, Maynard, and Sudbury. Each well has a Zone I radius of 400 feet, except for the tubular wells that make up the Hugh Cargill Wellfield, which have a 250 foot Zone I radius. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the Zone II. Nagog Pond and the associated water supply protection area is located in Acton and Littleton.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

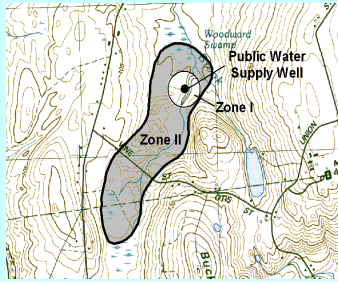
The Zone IIs and Zone C for Concord are primarily a mixture of forest, residential, and agriculture, with a small portion consisting of recreational and commercial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone A
2. Golf Course, Athletic Fields, and Agricultural activities
3. Residential Land Uses
4. Oil or Hazardous Material Contamination Sites
5. Comprehensive Wellhead Protection Planning

What is a Wellhead Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



The ranking of susceptibility to contamination for the Zone II of the Deaconess Well, White Pond Well, Second Division Well, Robinson Well, Hugh Cargill Wellfield, and the Zone C of the Nagog Pond is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2. The ranking of susceptibility to contamination for the Zone II of the Jenny Dugan Well is moderate, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone A - Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated storm water runoff; uncontained storage of fertilizers, manure, domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and un-permitted and unauthorized activities.

Wild animals, farm animals, and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. The following activities occur in the Zone A of the system's reservoir:

Nagog Pond - Roads, homes on private septic systems, agriculture, auto repair, stormdrains, and parking occurs throughout the Zone A of Nagog Pond.

Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.

2. Golf Course, Athletic Fields, and Agricultural Activities – Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If not contained or applied properly, animal waste from barnyards, manure pits and field application is a potential source of contamination to ground and surface water. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Course, Athletic Fields, and Agricultural Activities Recommendations:

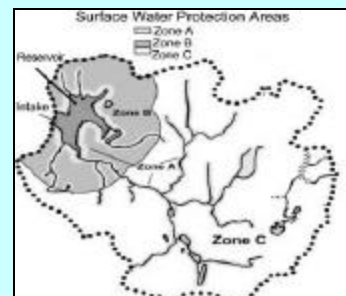
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ Encourage golf course managers and athletic field directors, and farmers to incorporate an **Integrated Pest Management (IPM)** approach into their pest management program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote **Best Management Practices (BMPs)** for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Work with golf courses, athletic fields, and farmers to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.

3. Residential Land Uses – If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

(Continued on page 4)

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Storm water** – Catch basins transport storm water from roadways and adjacent properties to the ground. As flowing storm water travels, it picks

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for storm water management and pollution controls.

4. Presence of Oil or Hazardous Material Contamination Sites – The Zone IIs contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0000435, 3-0018998 and 3-0019129. Refer to the attached map and Appendix 3 for more information.

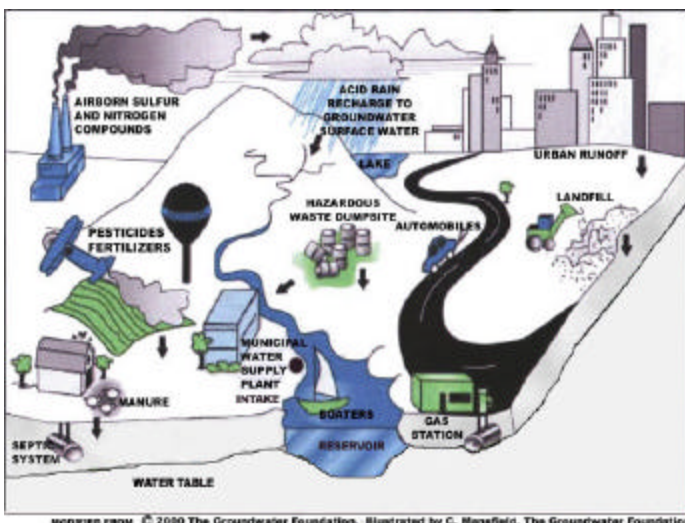
Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

5. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead and Surface Water Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan" and "Developing a Local Surface Water Supply Protection Plan".



- ✓ Coordinate efforts with local officials to compare local wellhead and surface water protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2) and Surface Water Supply Protection Regulations 310 CMR 22.20B and 310 CMR 22.20C. If there are no local controls or they do not meet the current regulations, adopt controls that meet 310 CMR 22.21(2), 310 CMR 22.20B and 310 CMR 22.20C. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).

Other land uses and activities within the Zone II that

Figure 1: Sample watershed with examples of potential sources of contamination

(Continued on page 6)

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II Number	Zone C Source ID	Potential Contaminant Sources*
Agricultural					
Fertilizer Storage or Use	6	M	374, 376, 479	01S	Leaks, spills, improper handling, or over-application of fertilizers
Manure Storage or Spreading	2	H	372, 374		Improper handling of manure (microbial contaminants)
Pesticide Storage or Use	6	H	374, 376, 479	01S	Leaks, spills, improper handling, or over-application of pesticides
Commercial					
Auto Repair Shops/ Service Stations	1	H		01S	Spills, leaks, or improper handling of automotive fluids, and solvents
Gas Stations	1	H	479		Spills, leaks, or improper handling or storage of automotive fluids and fuels
Golf Courses	1	M	374		Over-application or improper handling of fertilizers or pesticides
Medical Facilities	1	M	374		Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes
Nursing Homes	1	L	374		Microbial contaminants
Railroad Tracks and Yards	1	H	479		Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Residential					
Fuel Oil Storage (at residences)	Numerous	M	372, 373, 374, 375, 376, 479	01S	Spills, leaks, or improper handling of fuel oil
Lawn Care/ Gardening	Numerous	M	372, 373, 374, 375, 376, 479	01S	Over-application or improper storage and disposal of pesticides
Septic Systems/ Cesspools	Numerous	M	372, 373, 374, 375, 376, 479	01S	Microbial contaminants, and improper disposal of hazardous chemicals

Land Uses	Quantity	Threat	Zone II Number	Zone C Source ID	Potential Contaminant Sources*
Miscellaneous					
Aboveground Storage Tanks	1	M	374		Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	Numerous	L	372	01S	Microbial contaminants
Fishing/Boating	2	L	373, 376		Fuel and other chemical spills, microbial contaminants
Landfills and Dumps	2	H	373		Seepage of leachate
Oil or Hazardous Material Sites	3	--	374, 376		Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	5	M	374, 375, 376, 479		Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small quantity hazardous waste generators	3	M	374		Spills, leaks, or improper handling or storage of hazardous materials and waste
Storm water Drains/ Retention Basins	Numerous	L	372, 373, 374, 375, 376, 479	01S	Debris, pet waste, and chemicals in storm water from roads, parking lots, and lawns
Transportation Corridors	3	M	479	01S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	7	H	374, 479		Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generator	1	L	479		Spills, leaks, or improper handling or storage of hazardous materials and waste
Notes:					
<ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <ul style="list-style-type: none"> THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater. 					

(Continued from page 4)

are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, Concord's Zone IIs and Zone C contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Developing a Groundwater Conservancy District in 1982, with a revision in 2001 to meet land use controls established by Massachusetts Drinking Water Regulations 310 CMR 22.21. The Planning Board is the governing body over the District.
- Developing and adopting a Toxic and Hazardous Material bylaw, which is governed by the Board of Health.
- Joint audit project between the Board of Health and the Water Division
- The acquisition of a considerable portion of source protection areas, and the continued pursuit of additional land for the purpose of source protection.
- Active notification program to the Water Division in the event of a hazardous material release in a Zone II, and also for the removal of underground storage tanks in a Zone II.
- Advanced water quality monitoring program at Nagog Pond that includes a multi-level monitoring scheme to address source protection issues, including early warning monitoring.
- Conducting a comprehensive wastewater plan with a focus on Zone II areas, especially to look at the impacts from Title 5 septic systems.
- Directing drainage from the section of Route 2A that runs along Nagog Pond to an area outside the watershed, and for directing the drainage from the shopping complex into Little Nagog Pond, which also drains to an area outside of the watershed.

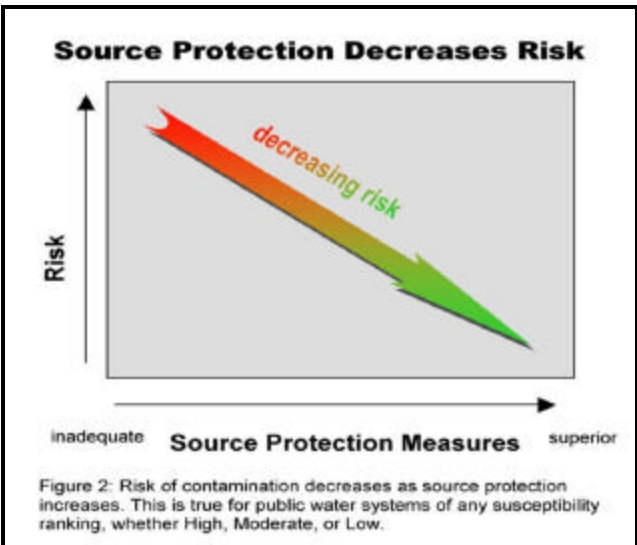
Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I and Zone A regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the storm water drainage in your Zone II and Zone C, and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.

Top 5 Reasons to Develop a Local Wellhead and Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.



Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A. DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. **Please note:** each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and/or Zone A?	YES (Zone I for all Wells)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Nagog Pond)	To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements.
Are the Zone I and Zone A posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone I and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I and Zone A?	YES (Zone I for all Wells except Hugh Cargill Wellfield)	Continue monitoring for non-water supply activities in Zone I.
	NO (Hugh Cargill Wellfield, Nagog Pond)	Monitor prohibited activities in Zone A, and investigate options for removing these activities (planting of rye in Zone I of Hugh Cargill Wellfield was agreed upon by DEP provided no pesticides or fertilizers are used, and no machinery is stored in the Zone I).
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)	YES	For additional source protection measures, refer to www.state.ma.us/dep/brp/dws .
Do neighboring communities protect the water supply protection areas extending into their communities?	SOME	Acton and Littleton do not have controls that protect Nagog Pond. Lincoln, Maynard, and Sudbury have incorporated adjacent community Zone IIs in their Groundwater Protection Overlay Districts. Request that municipal officials in Acton and Littleton develop land use restrictions that meet 310 CMR 22.20B and 310 CMR 22.20C.
Planning		
Does the PWS have a local surface water and wellhead protection plan?	YES	Continue the implementation of water supply protection plan. Follow "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ . Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed and wellhead protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	YES	Education is done through providing protection information to residents in Zone C of Nagog Pond. Material is provided to the public at Concord Town House, library, and schools. Other outreach occurs through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the Zone IIs and Zone C.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN CONCORD'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
36804	CONCORD CARLISLE REGIONAL SCHOOL	133 KEYES RD	CONCORD	HANDLER	VERY SMALL QUANTITY GENERATOR
136540	CUMBERLAND FARMS	120 THOREAU ST	CONCORD	FUEL DISPENSER	FUEL DISPENSER
130603	EMERSON HOSPITAL	133 OLD RD TO NINE ACRE RD	CONCORD	HANDLER	SMALL QUANTITY GENERATOR
130603	EMERSON HOSPITAL	133 OLD RD TO NINE ACRE RD	CONCORD	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

UNDERGROUND STORAGE TANKS WITHIN CONCORD'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
CONCORD COUNTRY CLUB	246 OLD RD TO NINE ACRE CORNER	CONCORD	COUNTRY CLUB/GOLF COURSE	1000	GASOLINE
CONCORD COUNTRY CLUB	246 OLD RD TO NINE ACRE CORNER	CONCORD	COUNTRY CLUB/GOLF COURSE	550	DIESEL
CUMBERLAND FARMS	120 THOREAU ST	CONCORD	GAS STATION	6000	GASOLINE
CUMBERLAND FARMS	120 THOREAU ST	CONCORD	GAS STATION	6000	GASOLINE
CUMBERLAND FARMS	120 THOREAU ST	CONCORD	GAS STATION	6000	GASOLINE
EMERSON HOSPITAL	133 OLD RD TO NINE ACRE CORNER	CONCORD	HOSPITAL	15000	FUEL OIL
EMERSON HOSPITAL	133 OLD RD TO NINE ACRE CORNER	CONCORD	HOSPITAL	4000	DIESEL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Concord Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0018998	133 Old Road To 9 Acre Corner	Concord	Oil
3-0019129	275 Holdenwood Road	Concord	Oil
3-0000435	100 North Road	Sudbury	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Danvers and Middleton

What is SWAP?

The Source Water Assessment and Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Danvers Water Department (also serves Middleton)
<i>PWS Address</i>	30 Lake Street
<i>City/Town</i>	Middleton, MA 01949
<i>PWS ID Number</i>	3071000
<i>Local Contact</i>	David Lane
<i>Phone Number</i>	(978) 777-0001 ext. 3011

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

Groundwater Sources

Zone II #: 254

Susceptibility: High

Well Name	Source ID#
Well #1	3071000-01G
Well #2	3071000-02G

Surface Water Sources

Source Name	Source ID #	Susceptibility
Middleton Pond Reservoir	3071000-01S	Moderate
Swan Pond Reservoir	3071000-02S	Moderate
Emerson Brook Reservoir	3071000-03S	Moderate

The wells for the Danvers and Middleton water supply are located within a single water supply protection area, with portions of the Zone II in the Towns of Danvers, Middleton, and Peabody, and a very small portion extending into Lynnfield. Each well has a Zone I radius of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The reservoirs for Danvers and Middleton are located within three separate water supply protection areas. The Middleton Pond Reservoir water supply protection area is mostly in the Town of Middleton, and extends into the Town of North Reading. The Swan Pond Reservoir water supply protection area is in the Town of North Reading. The Emerson Brook Reservoir water supply protection area is in the Towns of Middleton, North Andover, and North Reading, with a small portion extending into the Town of Andover.

The system water is filtered, chlorinated for disinfection, fluoridated for dental health, and pH adjusted for corrosion control. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

Danvers and Middleton watershed lands and Zone II lands are primarily a mixture of forest, and residential land use, with smaller portions consisting of commercial, industrial, and other land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Activities in Zone A
3. Hazardous Materials Storage and Use
4. Residential Land Uses
5. Transportation Corridors
6. Oil or Hazardous Material Contamination Sites
7. Comprehensive Wellhead Protection Planning

The ranking of susceptibility to contamination for the Well #1 & Well #2 Zone II is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2. The ranking of susceptibility to contamination for the Middleton Pond Reservoir, Swan Pond Reservoir and the Emerson Brook Reservoir Zone C is moderate, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone I – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for Well #1 (01G) is not entirely owned or controlled by the public water supplier, and contains a portion of Route 114, and a portion of a gas station.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Activities in Zone As - Land use activities within the Danvers and Middleton Zone As which, if managed improperly, may have an impact on surface water sources include: homes with on-site septic systems; residential storage of heating oil; local roads; stormwater runoff; and transmission line rights-of-way. Wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.

Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.

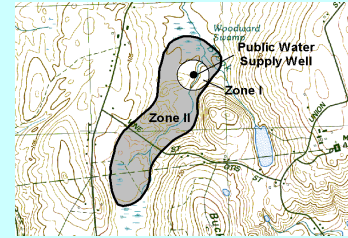
3. Hazardous Materials Storage and Use – Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP's for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure "Industrial Floor Drains" for more information.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.

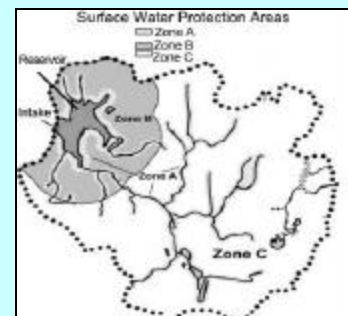


What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



4. Residential Land Uses – Approximately 49% of Danvers and Middleton’s combined Zone II and watershed lands consist of residential areas. Some of the areas have public sewers, and some use on-site septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.



- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.

5. Transportation Corridors - State and local roads are common in the watersheds and Zone II. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

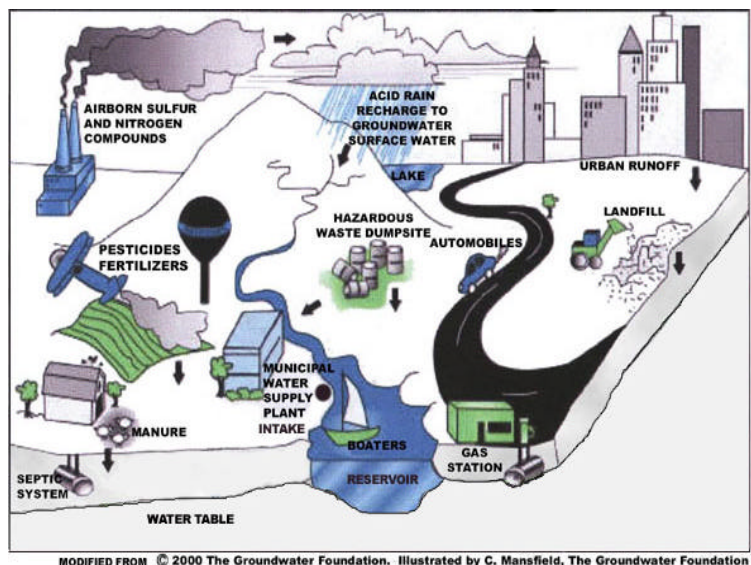


Figure 1: Sample watershed with examples of potential sources of contamination

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Water Supply Protection Areas

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II Number	Watershed Source ID	Potential Contaminant Sources*
Commercial					
Gas Stations	1	H	254	-	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	4	H	254	-	Spills, leaks, or improper handling of automotive fluids, and solvents
Dry Cleaners	1	H	254	-	Spills, leaks, or improper handling of solvents and wastes
Golf Courses	1	M	-	01S	Over-application or improper handling of fertilizers or pesticides
Repair Shops (Engine, Appliances, Etc.)	1	H	254	-	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Industrial					
Machine/ Metalworking Shops	6	H	254	-	Spills, leaks, or improper handling of solvents; metal tailings
Residential					
Fuel Oil Storage (at residences)	Numerous	M	254	01S, 02S, 03S	Fuel oil: spills, leaks, or improper handling
Lawn Care/ Gardening	Numerous	M	254	01S, 02S, 03S	Pesticides: over-application or improper storage and disposal
Septic Systems/ Cesspools	Numerous	M	254	01S, 02S, 03S	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous					
Aboveground Storage Tanks	4	M	254	-	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife and Pet Waste	Numerous	L	-	01S, 02S, 03S	Microbial contaminants
Landfills and Dumps	1	H	254	-	Seepage of leachate

Land Uses	Quantity	Threat	Zone II Number	Watershed Source ID	Potential Contaminant Sources*
Miscellaneous					
NPDES Locations	1	L	-	01S	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	6	--	254	03S	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	1	M	254	-	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	5	M	254	-	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/Retention Basins	Numerous/Several	L	254	01S, 02S, 03S	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way: <u>electric & gas</u>	1	L	254	01S, 02S, 03S	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	3	M	254	01S, 02S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	21	M	254	-	Spills, leaks, or improper handling or storage of hazardous materials and waste
Very Small Quantity Hazardous Waste Generator	5	L	254	03S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/Recycling Station	1	M	254	-	Improper management, seepage, and runoff of water contacting waste materials
Water Treatment Sludge Lagoon	2	L	-	01S	Sludge and wastewater: improper management

Table Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

- **THREAT RANKING** - Where there are two rankings, the first is for surface water, the second for groundwater sources. The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include contaminants from automotive leaks, maintenance, washing, or accidents. Railroad tracks run through the watershed. Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals.

Transportation Corridor Recommendations:

- ✓ Regularly inspect watersheds and Zone II for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.

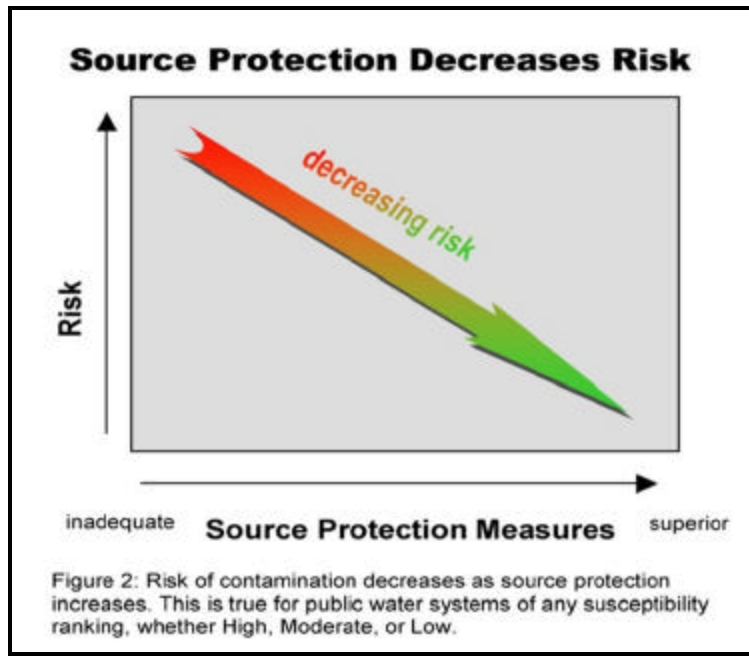
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Promote BMPs for stormwater management and pollution controls.

6. Presence of Oil or Hazardous Material Contamination Site – The Zone II and watershed contain MADEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Number 3-0001941, 3-0004485, 3-0006062, 3-0015046, 3-0016824, and 3-0018425. Refer to the attached map and Appendix C for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known contamination sites.

7. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir. Currently, the Town of Danvers has water supply protection controls that have been approved as meeting DEP's Wellhead Protection regulations 310 CMR 22.21(2), however, Middleton does not have water supply protection controls that have been approved as meeting DEP's Surface Water Protection regulations 310 CMR 22.20 (b) and (c).



Wellhead Protection and Surface Water Supply Protection Plans coordinate community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop plans for protecting drinking water supply sources.

Protection Planning Recommendations:

- ✓ Develop and implement Surface Water Supply and Wellhead Protection Plans. Refer your protection team to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance on developing plans.
- ✓ If your local surface water supply protection controls do not meet the current regulations, coordinate efforts with local officials to adopt local water supply protection controls that meet current MA regulations 310 CMR 22.21(2) and 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Zone II and watershed that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system’s Zone II and watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Conducting an annual watershed inspection.
- Working actively with school children on protection related issues.
- Controlling access to the reservoirs and watershed.
- Conducting a source protection study that identified storm drains in the watershed.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Inspect the Zone Is and As regularly, and when feasible, remove any non-water supply activities.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with the watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow to the Zone II .
2. The groundwater in this area probably discharges to surface water feature such as a river rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Top 5 Reasons to Develop a Local Wellhead and Surface Water Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I and Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and/or Zone A?	YES (Zone I for Well #2)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Zone I for Well #1 and Zone A for Reservoirs)	To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements. Investigate options for gaining ownership or control of the Zone A.
Are the Zone I and Zone A posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone I and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I and Zone A?	YES (Zone I for Well #2)	Monitor for any non-water supply activities in Zone I and prohibited activities in Zone A, and investigate options for removing these activities.
	NO (Zone I for Well #1 and Zone A for Reservoirs)	Monitor prohibited activities in Zone I and Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO - Middleton; YES - Danvers	Continue working with the Planning Board and the Board of Selectmen to compare land use controls to see that they meet current requirements of 310 CMR 22.21(2) and 310 CMR 22.20C. Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Work with the communities of Middleton, North Andover, North Reading, and Peabody to encourage them to protect watershed and Zone II lands.
Planning		
Does the PWS have a local surface water and wellhead protection plan?	NO	Develop and implement a surface water supply and wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" and "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed and wellhead protection committee?	YES	Encourage committee to include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	Fire Department	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	Some	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II and watershed.

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Develop and implement a Wellhead and Surface Water Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN DANVERS/MIDDLETON WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
178417	RONCO MACHINE CORPORATION	370 ANDOVER STREET	DANVERS	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
1080	DANVERS WATER TREATMENT PLANT	30 LAKE STREET	MIDDLETON	SURFAC	SURFACE WATER DISCHARGE
135310	MIDDLETON AEROSPACE CORPORATION	206 SOUTH MAIN STREET	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
39508	MIDDLETON LANDFILL	11 NATSUE WAY	MIDDLETON	SLF	LANDFILL
39508	MIDDLETON TRANSFER STATION	11 NATSUE WAY	MIDDLETON	TRSTN	TRANSFER STATION FOR HAZARDOUS MATERIAL
298535	WALGREENS	230 SOUTH MAIN STREET	MIDDLETON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
304351	MIDDLETON DEPARTMENT OF PUBLIC WORKS	195 NORTH MAIN STREET	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE PUBLIC WORKS
329379	114 IMPORTS INC	234 SOUTH MAIN STREET	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE PUBLIC WORKS
361645	WATSON BROTHERS INC	6 BIRCH RD	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
363425	FAST FREDDIES	265 SOUTH MAIN STREET	MIDDLETON	FULDSP	FUEL DISPENSER
136102	PEABODY PUMP N PANTRY	137 NEWBURY STREET	PEABODY	FUEL DISPENSER	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
136117	LAKE STREET CITGO	26 LAKE STREET	PEABODY	FUEL DISPENSER	FUEL DISPENSER
136117	LAKE STREET CITGO	26 LAKE STREET	PEABODY	HANDLER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
326368	ALLIED WASTE SYSTEMS DBA VINING DISPOSAL SERVICES	295 FOREST STREET	PEABODY	TRSTN	TRANSFER STATION FOR TOXICS
326370	ALLIED WASTE SYSTEMS DBA VINING DISPOSAL SERVICES	295 FOREST STREET	PEABODY	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
364207	ATLANTIC WASTE SYSTEMS NORTH	295 FOREST STREET	PEABODY	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
136118	J & H AUTO AND TRUCK REPAIR	129 NEWBURY STREET	PEABODY	FUEL DISPENSER	FUEL DISPENSER

UNDERGROUND STORAGE TANKS WITHIN DANVERS/MIDDLETON WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
PUMP N PANTRY	265 SOUTH MAIN STREET	MIDDLETON	GAS STATION	12000	GASOLINE
PUMP N PANTRY	265 SOUTH MAIN STREET	MIDDLETON	GAS STATION	10000	GASOLINE
PUMP N PANTRY	265 SOUTH MAIN STREET	MIDDLETON	GAS STATION	8000	GASOLINE
JOHN M. ROSS & SONS, INC.	50 BUXTON ROAD	DANVERS	CEMETARY	550	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
GAETA TOWING SERVICES	136 NEWBURY STREET	PEABODY	GAS STATION	10000	GASOLINE
GAETA TOWING SERVICES	136 NEWBURY STREET	PEABODY	GAS STATION	10000	GASOLINE
GAETA TOWING SERVICES	136 NEWBURY STREET	PEABODY	GAS STATION	4000	DIESEL
J & H AUTO/TRUCK REPAIR	129 NEWBURY STREET	PEABODY	GAS STATION	10000	GASOLINE
J & H AUTO/TRUCK REPAIR	129 NEWBURY STREET	PEABODY	GAS STATION	6000	GASOLINE
J & H AUTO/TRUCK REPAIR	129 NEWBURY STREET	PEABODY	GAS STATION	4000	GASOLINE
J & H AUTO/TRUCK REPAIR	129 NEWBURY STREET	PEABODY	GAS STATION	2000	DIESEL
PUMP N PANTRY	137 NEWBURY STREET	PEABODY	GAS STATION	12000	GASOLINE
PUMP N PANTRY	137 NEWBURY STREET	PEABODY	GAS STATION	12000	GASOLINE
REGIONAL WASTE SERVICES, INC,	295 FOREST STREET	PEABODY		10000	UNSPECIFIED

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Danvers/Middleton Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0001505	265 South Main Street	Middleton	Oil
3-0001941	234 South Main Street	Middleton	Oil
3-0004485	North Main Street	Middleton	Oil
3-0015046	North Main Street	Middleton	Oil
3-0016824	6-12 Birch Road	Middleton	Oil
3-0018425	1 Birch Road	Middleton	Hazardous Material
3-0001565	144 Newbury Street	Peabody	Oil
3-0006062	6 Bow Street	Peabody	Oil
3-0016711	137 Newbury Street	Peabody	Oil
3-0019019	144 Newbury Street	Peabody	Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Dedham-Westwood Water District

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Dedham-Westwood Water District
<i>PWS Address</i>	50 Elm Street/P.O. Box 9137
<i>City/Town</i>	Dedham, Massachusetts 02027
<i>PWS ID Number</i>	3073000
<i>Local Contact</i>	Robert Alexander
<i>Phone Number</i>	781-326-6890

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

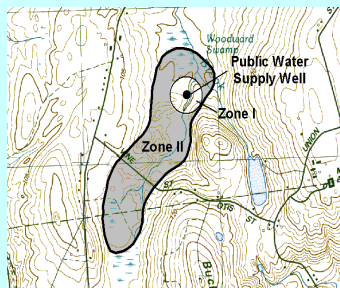
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 256

Susceptibility: Moderate

Well Names	Source IDs
Bridge Street Well A2	3073000-01G
Bridge Street Well B1	3073000-02G
Bridge Street Well D1	3073000-03G
Bridge Street Well E	3073000-04G
Bridge Street Well F	3073000-05G

Zone II #: 113

Susceptibility: High

Well Names	Source IDs
White Lodge Well #1	3073000-06G
White Lodge Well #2	3073000-07G
White Lodge Well #3	3073000-08G
White Lodge Well #4	3073000-09G
White Lodge Well #5	3073000-13G

Zone II #: 532

Susceptibility: High

Well Names	Source IDs
Rock Meadow Well #11	3073000-10G
Rock Meadow Tubular Wells	3073000-12G

The Dedham-Westwood Water District (Dedham-Westwood) maintains and operates twelve public water supply sources. Dedham-Westwood's sources are located within the Charles River Basin and the Neponset River Basin. The Bridge Street Well A2 (01G), Bridge Street Well B1 (02G), Bridge Street Well D1 (03G), Bridge Street Well E (04G), and Bridge Street Well F (05G) wellhead protection area is located entirely in Dedham; the White Lodge Well #1 (06G), White Lodge Well #2 (07G), White Lodge Well #3 (08G), White Lodge Well #4 (09G), and White Lodge Well #5 (13G) wellhead protection area is located in Dedham, Westwood, Canton, Milton and Norwood; and the Rock Meadow Well #11(10G) and the inactive Rock Meadow Tubular Wells (12G) wellhead protection area is located entirely in Westwood. These wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map to view the boundaries of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The Zone IIs for Dedham-Westwood are primarily a mixture of forest and residential land uses, with a small portion consisting of commercial and industrial activities (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous Materials Storage and Use
3. Residential Land Uses
4. Transportation Corridors
5. Oil or Hazardous Material Contamination Sites
6. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the White Lodge Wells and the Rock Meadow Wells is high, based on the presence of at least one high threat land use



within the water supply protection areas; the susceptibility for the Bridge Street Wells is moderate, based on the presence of at least one moderate threat land use within the water supply protection area, as seen in Table 2.

1. Activities in Zone Is – The Zone I for all of Dedham-Westwood’s wells is a 400 foot radius around each wellhead, except for the inactive tubular wellfield, for which the Zone I is a 250-foot radius around each well. Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I

through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department’s regulations and contain non-water supply activities such as homes and public roads. The Zone Is for the Bridge Street Wells contain homes and local roads; the Zone Is for White Lodge Wells #1, #2, #3, and #4 contain commercial/industrial buildings and parking for numerous cars; the Zone I for White Lodge Well #1 contains an underground storage tank; the Zone Is for White Lodge Wells #2 and #4 contain active railroad tracks; the Zone I for Rock Meadow Well #11 contains a home; and the Zone I for Rock Meadow Tubular Wells contains homes and a local road.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP’s Zone I requirements.

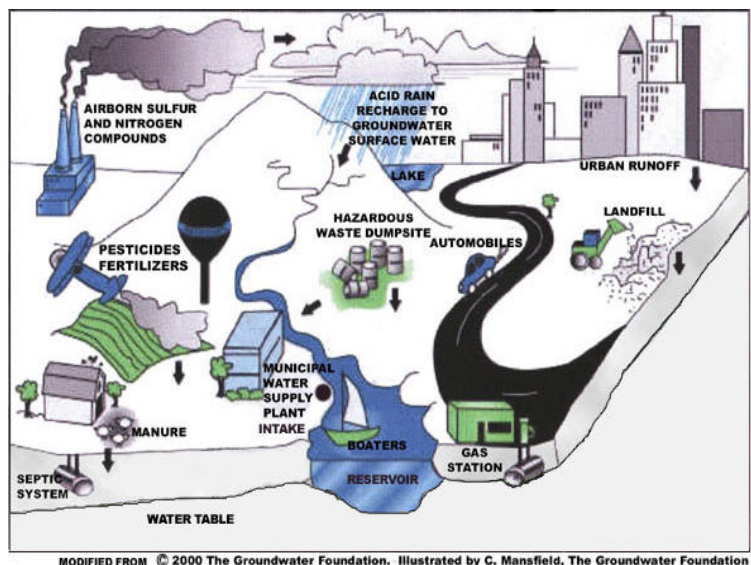


Figure 1: Sample watershed with examples of potential sources of contamination

- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Hazardous Materials Storage and Use –

Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs). Although many facilities within the watershed use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing

and disposing of hazardous waste. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.

- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

3. Residential Land Uses – Approximately 50% of the combined Zone IIs consist of residential areas, of which a portion is served by private septic systems, with the remainder being served by municipal sewerage. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.

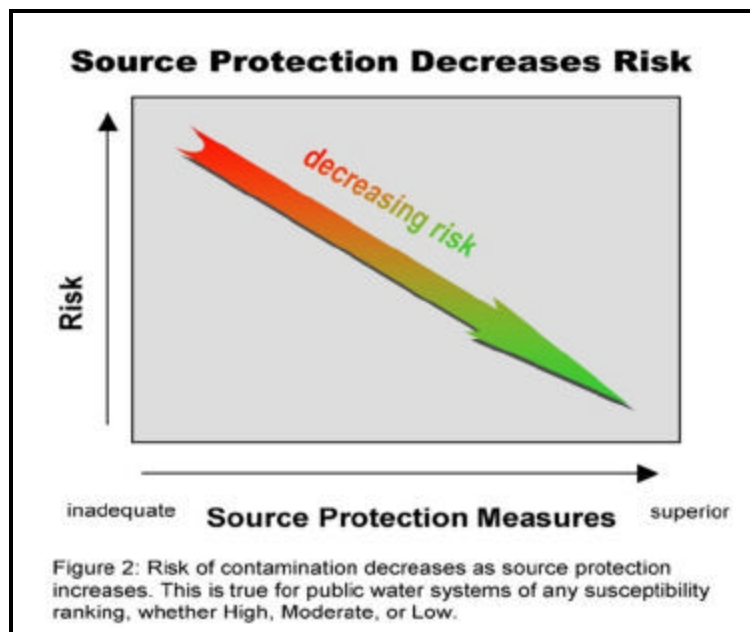
(Continued on page 7)

**When you wash your car in the driveway,
Remember
you're not just washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources
Commercial				
Body Shops	1	H	113	Improper management of vehicle paints, solvents, and primer products
Gas Stations	3	H	113, 532	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	3	H	113	Automotive fluids and solvents: spills, leaks, or improper handling
Bus and Truck Terminals	1	H	113	Spills, leaks, or improper handling of fuels and maintenance chemicals
Cemeteries	2	M	256, 532	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Dry Cleaners	2	H	532	Spills, leaks, or improper handling of solvents and wastes
Funeral Homes	2	L	532	Spills, leaks, or improper handling of hazardous chemicals
Golf Courses	1	M	113	Over-application or improper handling of fertilizers or pesticides
Laundromats	2	L	256, 532	Improper management of wash water
Printer and Blueprint Shops	2	M	113	Spills, leaks, or improper handling or storage of printing inks and chemicals
Railroad Tracks and Yards	1	H	113	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Industrial				
Food Processors	1	L	113	Spills, leaks, or improper handling or storage of cleaners and other chemicals; microbial contaminants
Hazardous Materials Storage	1	H	113	Spills, leaks, or improper handling or storage of hazardous materials
Industry/Industrial Parks	1	H	113	Spills, leaks, or improper handling or storage of industrial chemicals and metals
Residential				
Fuel Oil Storage (at residences)	100+	M	All	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	100+	M	All	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	100+	M	All	Hazardous chemicals: microbial contaminants, and improper disposal

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources
Miscellaneous				
Aboveground Storage Tanks	1	M	256	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	100+	L	All	Microbial contaminants
Composting Facilities	1	L	532	Storage and improper handling of organic material, animal waste, and runoff
Fishing/Boating	Numerous	L	256	Fuel and other chemical spills, microbial contaminants
Large Quantity Hazardous Waste Generators	3	H	113	Spills, leaks, or improper handling or storage of hazardous materials and waste
Oil or Hazardous Material Sites	6	--	All	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	532	Spills, leaks, or improper handling or storage of deicing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	4	M	All	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	2	M	113	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/Retention Basins	100+/2	L	All/113	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way	1	L	532	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	5	M	All	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	21	H	113, 532	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	10	L	113, 256, 532	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/Recycling Stations	1	M	532	Improper management, seepage, and runoff of water contacting waste materials
Wastewater Treatment Plant/Collection Facility/Lagoons	1	M	113	Improper handling or storage of treatment chemicals or equipment maintenance materials; improper management of wastewater
Table 2 Notes:				
<ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. 				
<p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

4. Transportation Corridors - Transportation corridors and other paved and unpaved local roads cross through the water supply protection areas. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins.

Transportation Corridor Recommendations:

- ✓ Wherever possible, ensure that drains discharge stormwater outside of the Zone I.
- ✓ Identify stormwater drainage systems along transportation corridors. If maps aren’t yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone IIs can be effectively contained. Review storm drainage maps with emergency response teams.
- ✓ Work with the Town and State to best manage stormwater in the Zone IIs. Best management practices include street sweeping, vegetative swales, and regular catch basin inspection, cleaning and maintenance.

5. Presence of Oil or Hazardous Material Contamination Sites – The Zone IIs for Dedham-Westwood’s wells contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 3-0002778, 3-0014902, 3-0016936, 3-0018579, 3-0012483, and 3-0002514. Refer to the attached maps and Appendix C for more information on these sites

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

6. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir. Currently, the towns of Dedham and Westwood have a groundwater protection bylaw that meets DEP’s Groundwater Protection regulations 310 CMR 22.21. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Coordinate efforts with the Towns of Canton, Milton and Norwood to include Dedham-Westwood’s source protection areas in local wellhead protection controls. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Zone II are included in Table 2. Refer to Table 2 and Appendix B for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Dedham-Westwood is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Actively enforcing existing wellhead protection controls
- Providing a household hazardous waste collection facility
- Providing wellhead protection information through municipal newsletter, website, and with water audit kits
- Requiring variable depth monitoring wells for new business in the White Lodge Wells source protection area
- Partnering with the League of Women Voters to promote educational program for environmentally sound lawn care
- Participating in four town regional work group that will evaluate resources (i.e. transportation, environment, and economic development)
- Receiving DEP source protection grant for road salt monitoring along Route 128/95
- Participating in Neponset Valley Chamber of Commerce conservation and source protection program

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	NO	To the extent possible, remove prohibited activities in Zone I to comply with DEP's Zone I requirements. Investigate options for gaining ownership or control of the Zone I.
Are the Zone Is posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone Is regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Monitor prohibited activities in Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have local controls that meet Wellhead Protection Regulations 310 CMR 22.21(2)?	YES	Both the towns, Dedham and Westwood, have a bylaw that meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Work with the towns of Canton, Milton and Norwood to encourage them to adopt local controls that include Dedham-Westwood's wellhead protection areas.
Planning		
Does the PWS have a wellhead protection plan?	NO	Develop and implement a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES—Westwood NO—Dedham	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	YES	Increase residential outreach through bill stuffers and coordination with local groups. Aim additional efforts at commercial/industrial uses within the Zone II.

- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Develop and implement a Wellhead Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone IIs. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN DEDHAM-WESTWOOD WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
130468	CUMBERLAND CRUDE PROCESSING	777 DEDHAM ST	CANTON	TURRPT	LARGE QUANTITY TOXICS USER
130468	CUMBERLAND FARMS - PLANT	777 DEDHAM ST	CANTON	FULDSP	FUEL DISPENSER
130468	CUMBERLAND FARMS INC	777 DEDHAM ST	CANTON	PLANT	RES APPLICATION APPROVED
130468	CUMBERLAND FARMS INC	777 DEDHAM ST	CANTON	DISCH	MWRA SEWER CONNECTION
136151	CUMBERLAND FARMS 2192	2640 WASHINGTON ST	CANTON	FULDSP	FUEL DISPENSER
367522	EXXONMOBIL OIL CORP	2776 WASHINGTON ST	CANTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
216791	HARRISON SPECIALTY CO	15 UNIVERSITY RD	CANTON	DISCH	MWRA SEWER CONNECTION
37833	HIGHLAND AUTO BODY INC	2740 WASHINGTON ST	CANTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130461	INSTRON CORPORATION	100 ROYALL ST	CANTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
130461	INSTRON CORPORATION	100 ROYALL ST	CANTON	PLANT	AIR QUALITY PERMIT
305176	REEBOK WORLD HEADQUARTERS	104 ROYALL ST	CANTON	PLANT	AIR QUALITY PERMIT
27940	SHIELD PACKAGING CO INC	15-21 UNIVERSITY RD	CANTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
126606	SUNOCO SERVICE STATION	2782 WASHINGTON ST	CANTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
320072	TEXACO SERVICE STATION	2760 WASHINGTON ST	CANTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
320072	TEXACO SERVICE STATION	2760 WASHINGTON ST	CANTON	FULDSP	FUEL DISPENSER
257410	NORFOLK PROBATE AND FAMILY COURT	649 HIGH ST	DEDHAM	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
297108	CRAMER PHODUCTIONS INC	425 UNIVERSITY AVE	NORWOOD	DISCH	MWRA SEWER CONNECTION
35262	ATLAS OIL CORP	385 UNIVERSITY AVE	WESTWOOD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
136188	CUMBERLAND GULF 118624	722 HIGH ST	WESTWOOD	FULDSP	FUEL DISPENSER
204680	GLOBE NEWSPAPER CO INC	22 MARYMOUNT AVE	WESTWOOD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
204680	GLOBE NEWSPAPER COMPANY	22 MARYMOUNT AVE	WESTWOOD	DISCH	MWRA SEWER CONNECTION
367884	MOBIL 12658	710 HIGH ST	WESTWOOD	FULDSP	FUEL DISPENSER
283176	OUTPUT TECHNOLOGIES	46 HARVARD ST	WESTWOOD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37622	WESTWOOD DPW	50 CARBY ST	WESTWOOD	FULDSP	FUEL DISPENSER
37622	WESTWOOD DPW	50 CARBY ST	WESTWOOD	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
376017	WESTWOOD FIRE DEPARTMENT	637 HIGH ST	WESTWOOD	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
360871	WESTWOOD POLICE DEPT	590 HIGH ST	WESTWOOD	FULDSP	FUEL DISPENSER

UNDERGROUND STORAGE TANKS WITHIN DEDHAM-WESTWOOD WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
CUMBERLAND FARMS PLANT	777 DEDHAM ST	CANTON	PLANT	10000	GASOLINE
CUMBERLAND FARMS PLANT	777 DEDHAM ST	CANTON	PLANT	8000	GASOLINE
NEW NEPONSET VALLEY SEWER PUMPING	UNIVERSITY RD	CANTON	UTILITIES	8000	FUEL OIL
SUNOCO	2782 WASHINGTON ST	CANTON	GAS STATION	6000	GASOLINE
SUNOCO	2782 WASHINGTON ST	CANTON	GAS STATION	6000	GASOLINE
SUNOCO	2782 WASHINGTON ST	CANTON	GAS STATION	6000	GASOLINE
TEXACO SERVICE	2760 WASHINGTON ST	CANTON	GAS STATION	10000	GASOLINE
TEXACO SERVICE	2760 WASHINGTON ST	CANTON	GAS STATION	8000	GASOLINE
TEXACO SERVICE	2760 WASHINGTON ST	CANTON	GAS STATION	8000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
TEXACO SERVICE	2760 WASHINGTON ST	CANTON	GAS STATION	6000	DIESEL
TEXACO SERVICE	2760 WASHINGTON ST	CANTON	GAS STATION	1000	FUEL OIL
TEXACO SERVICE	2760 WASHINGTON ST	CANTON	GAS STATION	550	WASTE OIL
CUMBERLAND GULF	722 HIGH ST	WESTWOOD	GAS STATION	8000	GASOLINE
CUMBERLAND GULF	722 HIGH ST	WESTWOOD	GAS STATION	8000	GASOLINE
CUMBERLAND GULF	722 HIGH ST	WESTWOOD	GAS STATION	8000	GASOLINE
DEDHAM-WESTWOOD WATER	154 UNIVERSITY AVE	WESTWOOD	WATER TREATMENT	12000	DIESEL
DEDHAM-WESTWOOD WATER	154 UNIVERSITY AVE	WESTWOOD	WATER TREATMENT	2000	DIESEL
EXXONMOBIL OIL CORPORATION	710 HIGH ST	WESTWOOD	GAS STATION	12000	GASOLINE
EXXONMOBIL OIL CORPORATION	710 HIGH ST	WESTWOOD	GAS STATION	10000	GASOLINE
EXXONMOBIL OIL CORPORATION	710 HIGH ST	WESTWOOD	GAS STATION	10000	GASOLINE
TOWN OF WESTWOOD POLICE DEPT	590 HIGH ST	WESTWOOD	MUNICIPAL	6000	GASOLINE

For More Information On Underground Storage Tanks, Visit The Massachusetts Department Of Fire Services Web Site: <http://www.state.ma.us/dfs/ust/usthome.htm>
Note: This Appendix Includes Only Those Facilities Within The Water Supply Protection Area(s) That Meet State Reporting Requirements And Report To The Appropriate Agencies. Additional Facilities Located Within The Water Supply Protection Area(s) Should Be Considered In Local Drinking Water Source Protection Planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Dedham-Westwood Water District Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0002514	15-21 University Rd	Canton	Hazardous Material
3-0012483	Dedham St	Canton	Oil
3-0018579	47 Village Ave	Dedham	Oil
3-0002778	710 High St	Westwood	Oil
3-0014902	716 High St	Westwood	Oil
3-0016936	722 High St	Westwood	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Source Water Assessment Program (SWAP) Report For Dover Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
March 13, 2002

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Dover Water Department
<i>PWS Address</i>	Town House/P.O. Box 250
<i>City/Town</i>	Dover, Massachusetts
<i>PWS ID Number</i>	3078000
<i>Local Contact</i>	Karl Warnick
<i>Phone Number</i>	(508) 785-2875

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Church Street Wells	3078000-01G	250	970	Moderate
Caryl Park Well	3078000-02G	119	430	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The Caryl Park Well is located approximately 100 feet from the south side of the park's main parking lot. Caryl Park Well has a Zone I of 119 feet and an Interim Wellhead Protection Area (IWPA) of 430 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The Dover Water Department's public water system also includes the Church Street Wellfield, an inactive source that is located in a wooded area approximately 200 feet west of the pumphouse on Church Street. The Church Street Wellfield has a Zone I of 250 feet and an Interim Wellhead Protection Area (IWPA) of 970 feet.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

Both wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

DEP requires public water suppliers to monitor the quality of the water. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Athletic fields
3. Residential land uses
4. Comprehensive wellhead protection planning

The overall ranking of susceptibility to contamination for the well is moderate, based on the presence of at least one moderate threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone Is** – Currently, the Caryl Park and Church Street Wells do not meet DEP's restrictions, which only allow water supply related activities in the Zone I. The Caryl Park Well Zone I contains a portion of the basketball court, a portion of the picnic area, and recreational activities. The Church Street Wells Zone I contains a house, and a portion of Church Street. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their systems.

Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Parking lot, driveways & roads	Church Street	Caryl Park Church Street	Moderate	Limit road salt usage and provide drainage away from wells
Athletic Field	No	Caryl Park	Moderate	Fertilizer and pesticide use
Septic System	Unknown	Church Street	Moderate	See septic systems brochure in the appendix
Fuel Storage Above Ground	Unknown	Church Street	Moderate	Tanks should be on an impervious surface

* For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

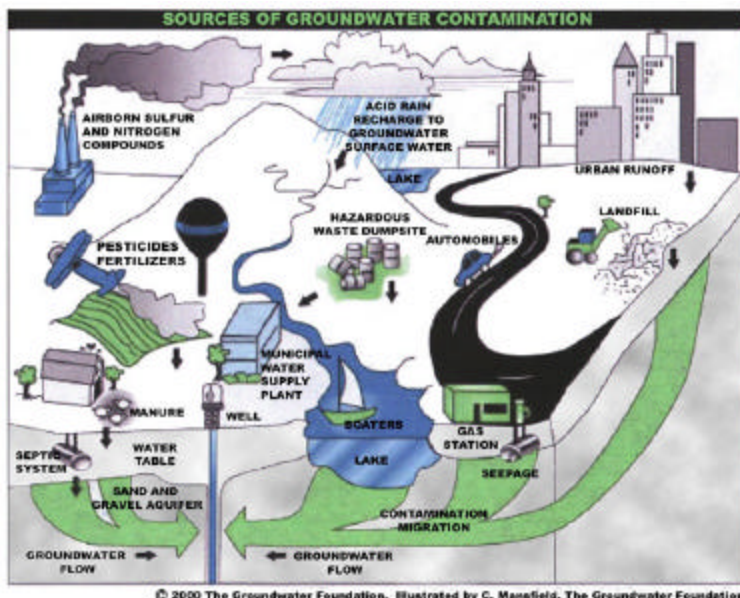
2. Athletic Field - Fertilizers used to promote plant growth also have the potential to contaminate water sources if applied improperly. The principle components of fertilizer are nitrogen, phosphorus and potassium (N-P-K). Nitrogen is the main nutrient for new, green growth, phosphorus promotes root development and potassium improves the overall health of plants. Excessive amounts of nitrogen and phosphorus are the nutrients most likely to adversely affect water quality.

Athletic Field Recommendations - Fertilizer

- ✓ **Application** - Recommend the use of a slow-release nitrogen fertilizer. There are two basic forms of nitrogen contained in fertilizer products: fast-release or Water Soluble Nitrogen (WSN), and slow-release or Water Insoluble Nitrogen (WIN). Slow-release fertilizers provide a more controlled release of nitrogen thereby limiting the amount of fertilizer leaching into groundwater.
- ✓ **Storage** - Properly store fertilizer. Unused fertilizer should be removed from the spreader and returned to the original bag or container for future use. Store unused fertilizer in a dry place away from any water source. If stored fertilizer gets wet, you not only lose nutrient value, there is potential for nitrates to leach into water sources.

2. Residential Land Uses – The IWPA for the Church Street Wells contains several residences. All residences are on private septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they could be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.



Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available on <http://www.mass.gov/dep/brp/dws/protect.htm> which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.
- ✓ Aboveground storage tanks in your IWPA should be located on an impermeable surface, and also contained in an area large enough to hold the complete liquid volume, should a spill occur.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

For More Information:

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier, and town boards.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the Caryl Park Well and Church Street Wellfield's susceptibility to contamination. The Dover Water Department is commended for maintaining the grounds of Caryl Park without the use of pesticides; for posting the Zone I of each well with Drinking Water Protection Area signs; and for placing physical barriers in areas around the Zone I of the Caryl Park Well to discourage people from entering the Zone I.

The Dover Water Department should review and adopt the key recommendations above and the following recommendations:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Prohibit public access to the well and pumphouse by locking facilities, gating roads, and posting signs.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, check any above ground tanks for leaks, etc.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include groundskeepers and certified operator. Post labels as appropriate on raw materials and hazardous waste.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Work with your community to ensure that stormwater runoff is directed away from wells and is treated according to DEP guidance.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, refer to <http://www.state.ma.us/dep/bwp/dhm/files/sqgsum.pdf> for the Requirements for Small Quantity Generators .
- ✓ Remove hazardous materials from rooms with floor drains that drain to the ground or septic systems.
- ✓ Floor drains in areas where hazardous materials or wastes might reach them need to drain to a tight tank, be sealed, or be connected to a sanitary sewer.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis.

- ✓ Concrete pads should slope away from well, and well casing should extend above ground.
- ✓ For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

Planning:

- ✓ Work with local officials in Dover to include the Caryl Park Well and Church Street Wellfield IWPA's in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the "Wellhead Protection Grant Program". Please note: each program year the Department posts a new Request for Response for the Grant program (RFR). Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at <http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf>.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Protection Recommendations
- Additional Documents on Source Protection



Source Water Assessment Program (SWAP) Report For Old Farm Road Water Trust

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource
Protection,
Drinking Water Program

Date Prepared:
February 20, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Old Farm Road Water Trust
<i>PWS Address</i>	12 Old Farm Road
<i>City/Town</i>	Dover, Massachusetts
<i>PWS ID Number</i>	3078001
<i>Local Contact</i>	Robert Freeman
<i>Phone Number</i>	(508) 785-8063

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Drilled Well #1	3078001-01G	226	553	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The well for the Old Farm Road Water Trust is located in a wooded area approximately 250 feet north of #17 Old Farm Road. Drilled Well #1 has a Zone I radius of 226 feet and an Interim Wellhead Protection Area (IWPA) radius of 553 feet. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA. **The well serving the facility has no treatment at this time.** For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include **inappropriate activities in Zone I**.

The overall ranking of susceptibility to contamination for Drilled Well #1 is moderate, based on the presence of at least one moderate threat land use or activity in the IWPA, as seen in Table 2.

Zone I – Currently, Drilled Well #1 does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The Old Farm Road Water Trust Zone I contains a septic system, a portion of a local road, and driveways. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce Drilled Well #1's susceptibility to contamination. Old Farm Road Water Trust is commended for providing residents with educational information pertaining to public water supplies. Old Farm Road Water Trust should review and adopt the key recommendations above and the following:

Priority Recommendation:

- ✓ Complete a wellhead protection plan.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Septic System	Yes	Yes	Moderate	See septic systems brochure in the appendix
Driveways & road	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Lawn care/gardening	Yes	Yes	Moderate	Provide educational material on BMPs to residents
Storm drains	Yes	Yes	Low	Discharge outside Zone I
Utility transformers	No	Yes	Low	See recommendation under facility management
Structures	Yes	Yes	-	Non-water supply structures in Zone I

For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Prohibit public access to the well by fencing wellhead, gating access paths, and posting signs.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, etc.
- ✓ Redirect road and driveway drainage in the Zone I away from well.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

Training and Education:

- ✓ Train operators on proper hazardous material use, disposal, emergency response, and best management practices.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Develop educational program to teach residents about the hazards associated with lawn care chemicals; implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides,
- ✓ Provide educational material on proper septic system maintenance.
- ✓ Ensure that stormwater runoff is directed away from the well and is treated according to DEP guidance.
- ✓ Encourage residents to participate in Household Hazardous Waste Collection days or centers.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/brp/dws/dwspubs.html.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on Old Farm Road Water Trust property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

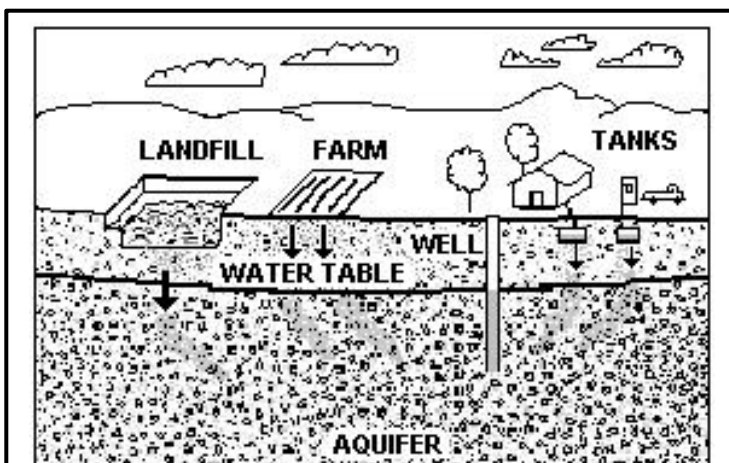


Figure 1: Example of how a well could become contaminated by different land uses and activities.

- ✓ For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

Planning:

- ✓ Work with local officials in Dover in creating a Groundwater Protection District Bylaw that meets current DEP regulations, and include Old Farm Road Water Trust's IWPA to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead

For More Information:

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/ including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

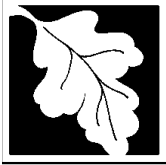
Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet from last year (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- A Reference Guide for Homeowners: Your Septic System Brochure
- Protecting Groundwater from Pesticides
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form
- Developing a Local Wellhead Protection Plan
- Wellhead Protection Tips For Small Water Systems
- Healthy Lawn/Healthy Environment
- Protecting Water Sources from Fertilizer



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Dover Water Company

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Dover Water Company, Inc.
<i>PWS Address</i>	85 Walpole Street/P.O. Box 125
<i>City/Town</i>	Dover, Massachusetts 02030-0125
<i>PWS ID Number</i>	3078006
<i>Local Contact</i>	Judy Wotton
<i>Phone Number</i>	(508) 785-0052

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

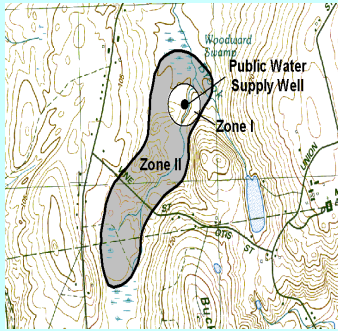
Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Attachments

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

Zone II #: 360

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Chickering Drive Wells	3078006-02G
Knollwood Drive Wells	3078006-03G

Zone II #: 361

Susceptibility: Moderate

<i>Well Names</i>	<i>Source IDs</i>
Walpole Street Wellfield	3078006-01G
Draper Road Well #1	3078006-04G
Draper Road Well #2	3078006-05G

Zone II #: 517

Susceptibility: Moderate

<i>Well Names</i>	<i>Source IDs</i>
Francis Street Well A	3078006-0AG
Francis Street Well B	3078006-0BG

The Dover Water Company (Dover) maintains and operates five (5) public water supply sources; Francis Street Wells A and B are proposed sources. Dover's water supplies are located within three separate source protection areas. A small portion of the water supply protection areas for Draper Road Wells #1 and #2, and the proposed Francis Street Wells A and B, extends into Medfield, with the majority being in Dover. The water supply protection area for the Chickering Drive Wells and the Knollwood Drive Wells lies completely within the Town of Dover, as does the water supply protection area for the Walpole Street Wellfield.

All of Dover's wells have a Zone I radius of 400 feet, except for the Walpole Street Wellfield, which has a Zone I radius of 250 feet around each well. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone IIs.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The combined Zone IIs for Dover's wells are a mixture primarily of forest and residential land uses, with a small section having commercial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Residential Land Uses
3. Transportation Corridors
4. Oil or Hazardous Material Contamination Sites
5. Comprehensive Wellhead Protection Planning

The ranking of susceptibility to contamination for the Chickering Drive Wells and the Knollwood Drive Wells is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2. The ranking of susceptibility to contamination for the Walpole Street Wellfield, Draper Road Well #1, Draper Road Well #2, Francis Street Well A and Francis Street Well B is moderate, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone Is – The Zone I for each of the wells is a 400 foot radius around the wellhead, except for the Walpole Street Wellfield, which has a Zone I of 250 feet around each well. Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities. The Zone Is for the Knollwood Drive Wells and the Draper Road Wells contain houses and local roads; the Chickering Drive Wells Zone I is intersected by a local road; and, the Zone I for the Walpole Street Wellfield contains a portion of a house.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Residential Land Uses – A large percentage of the combined Zone IIs consist of residential areas. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- ◆ **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- ◆ **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- ◆ **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and

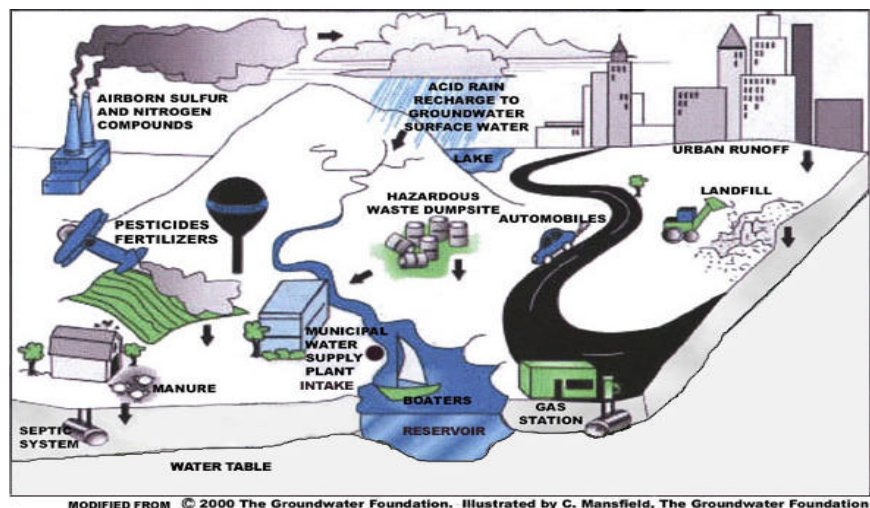


Figure 1: Sample watershed with examples of potential sources of contamination

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

- ◆ **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Work with the Town to educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with the Town and planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Transportation Corridors - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills

of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include substances from automotive leaks, maintenance, washing, or accidents.

Transportation Corridor Recommendations:

- ✓ Work with the Town to regularly inspect Zone II for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained, especially on Walpole Street in the area of the tubular wellfield.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule.

Regular street sweeping reduces the amount of potential contaminants in runoff.

- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren’t yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

4. Presence of Oil or Hazardous Material Contamination Sites – The Zone II for the Chickering Drive and Knollwood Drive wells contains a DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Numbers 3-0000486. Refer to the attached map and Appendix C for more information.

**When you fertilize the lawn,
Remember
you’re not *just* fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

The Massachusetts Department of Environmental Protection, One Water Street, Boston, MA 02108

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources*
Commercial				
Gas Stations	1	H	360	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	1	H	360	Spills, leaks, or improper handling of automotive fluids, and solvents
Cemeteries	1	M	360	Over-application of pesticides: leaks, spills, improper handling; historic embalming fluids
Railroad Tracks and Yards	1	H	360	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Residential				
Fuel Oil Storage (at residences)	Numerous	M	All	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	All	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	Numerous	M	All	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous				
Oil or Hazardous Material Sites	1	--	360	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	360	Spills, leaks, or improper handling or storage of de-icing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	2	M	360	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	1	M	360	Hazardous materials and waste: spills, leaks, or improper handling or storage
Stormwater Drains/ Retention Basins	Numerous	L	All	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources*
Miscellaneous				
Transmission Line Rights-of-Way: electric & gas	2	L	360	Corridor maintenance pesticides: over-application or improper handling; construction
Transportation Corridors	1	M	360	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling
Underground Storage Tanks	5	H	360	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	2	L	360	Hazardous materials and waste: spills, leaks, or improper handling or storage
Table 2 Notes:				
<ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. 				
<p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

(Continued from page 4)

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

5. Comprehensive Wellhead Protection Planning – The Town of Dover has water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Other land uses and activities within the Zone II are listed in Table 2. Refer to Table 2 for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system's Zone II contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Active participation working with the Town of Dover to adopt land use controls that meet DEP's Drinking Water Regulations
- Continuously providing source protection information to consumers

Implementing protection measures and best management practices (BMPs) will reduce the Dover Water Company's susceptibility to contamination. Dover Water Company should review and adopt the key recommendations above and the following:

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone Is regularly, and when feasible, remove any non-water supply activities.
- ✓ Organize a wellhead protection committee comprised of stakeholders from both the public and private sectors to implement the Wellhead Protection Plan.
- ✓ Continue to educate residents on ways they can help you to protect drinking water sources.
- ✓ Locate stormwater drainage in your Zone II and cooperate on responding to spills or accidents.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix C.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to

When you wash your car in the driveway, Remember you're not *just* washing your car in the driveway.



All the soap, scum, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Water Street Boston, MA 02108

Source Protection Decreases Risk

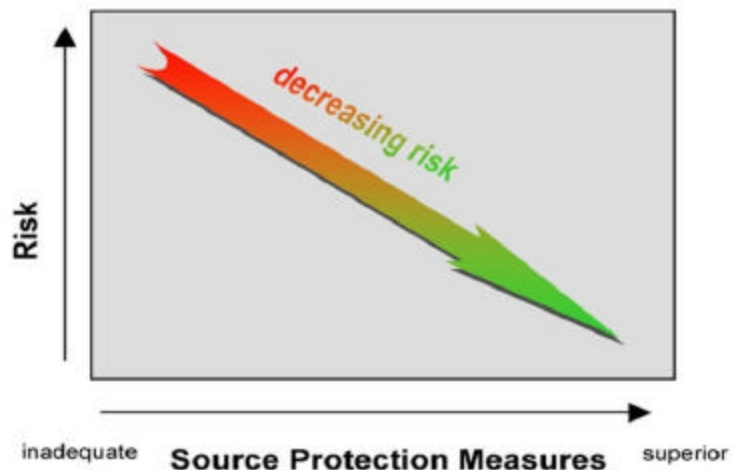


Figure 2: Risk of contamination decreases as source protection increases. This is true for public water systems of any susceptibility ranking, whether High, Moderate, or Low.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Knollwood Drive)	To the extent possible, remove prohibited activities in Zone I to comply with DEP's Zone I requirements. Investigate options for gaining ownership or control of the Zone I.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue routine inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Continue monitoring for non-water supply activities in Zone Is that may have potential impact on wells .
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town's bylaw meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	YES	The Town of Medfield includes Dover's water supply protection areas in its protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop and implement a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish a committee with representatives from the town, citizens' groups, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	Fire Department	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	YES	Currently, outreach is through the annual Consumer Confidence Report, lawn care and septic system fact sheets. Aim additional efforts through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups.

improve drinking water protection in your community. Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone IIs. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Attachments

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN DOVER WATER COMPANY WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
257884	DOVER AUTOMOTIVE SERVICE	4 WHITING RD	DOVER	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZARDOUS WASTE
367566	EXXONMOBIL OIL CORP	2 WALPOLE ST	DOVER	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
367566	EXXONMOBIL OIL CORP	2 WALPOLE ST	DOVER	FULDSP	FUEL DISPENSER
750	KEVIN F & WILLIAM J HUNT	45 TROUTBROOK RD	DOVER	GROUND	GROUNDWATER DISCHARGE
272179	LUTTAZI SE & SONS	SPRINGDALE AVE	DOVER	DISCH	INDUSTRIAL WASTE WATER HOLDING TANK
272179	LUTTAZI SE & SONS	SPRINGDALE AVE	DOVER	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZARDOUS WASTE
368648	MVF REALTY	20 SPRINGDALE AVE	DOVER	GROUND	GROUNDWATER DISCHARGE

UNDERGROUND STORAGE TANKS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
EXXONMOBIL OIL CORPORATION	2 WALPOLE ST	DOVER	GAS STATION	12000	GASOLINE
EXXONMOBIL OIL CORPORATION	2 WALPOLE ST	DOVER	GAS STATION	10000	GASOLINE
EXXONMOBIL OIL CORPORATION	2 WALPOLE ST	DOVER	GAS STATION	10000	GASOLINE
EXXONMOBIL OIL CORPORATION	2 WALPOLE ST	DOVER	GAS STATION	1000	FUEL OIL
EXXONMOBIL OIL CORPORATION	2 WALPOLE ST	DOVER	GAS STATION	550	WASTE OIL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site:
<http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Dover Water Company Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0000486	2 Walpole St	Dover	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Springdale Farms Water Supply Trust

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Springdale Farms Water Supply Trust
<i>PWS Address</i>	P.O. Box 725
<i>City/Town</i>	Dover, Massachusetts 02030
<i>PWS ID Number</i>	3078008
<i>Local Contact</i>	Jeffrey Carter
<i>Phone Number</i>	(508) 785-2302

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

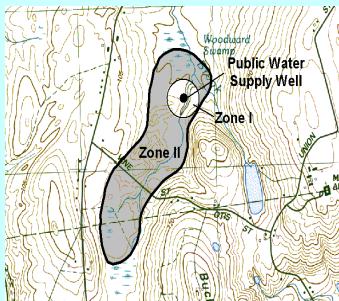
Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Attachments

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Section 1: Description of the Water System

Zone II #: 547

Susceptibility:

Well Names	Source IDs
Well A	3078008-01G
Well B	3078008-02G

The Springdale Farms Water Supply Trust Wells are located in the northwest section of Dover. Both wells have a Zone I radius of 250 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The Zone II for the Springdale Farms Water Supply Trust Wells is a mixture primarily of forest and residential land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Key Land Uses and Protection Issues include:

1. Residential Land Uses
2. Transportation Corridors
3. Protection Planning

The overall ranking of susceptibility to contamination for the system is moderate, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2.

1. Residential Land Uses – Approximately 49% of the Zone II consists of residential areas. None of the residences have public sewers, and so all use on-site septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- ◆ **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- ◆ **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- ◆ **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- ◆ **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Work with the Town to educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

2. Transportation Corridors - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include substances from automotive leaks, maintenance, washing, or accidents.

Transportation Corridor Recommendations:

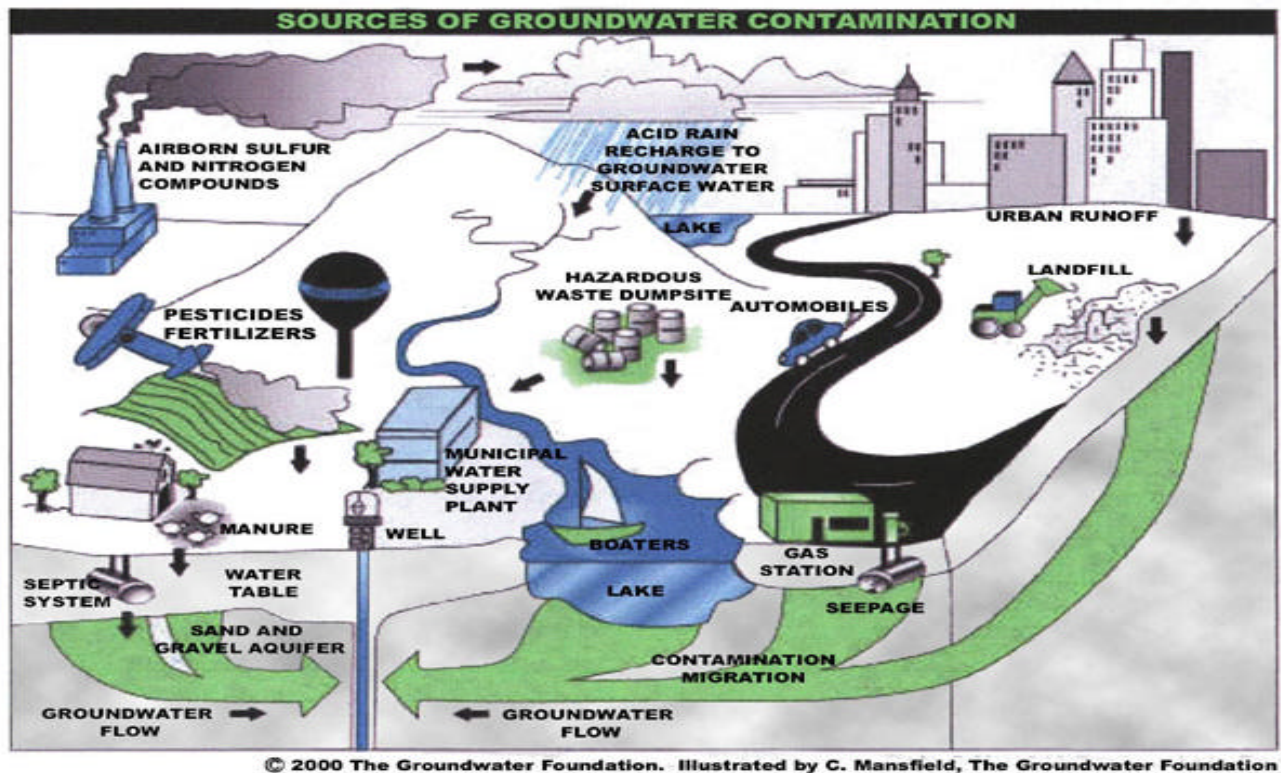
- ✓ Regularly inspect Zone II for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren’t yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



3. Protection Planning – The Town of Dover has water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.

Other land uses and activities within the Zone II are listed in Table 2. Refer to Table 2 for more information about these land uses.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

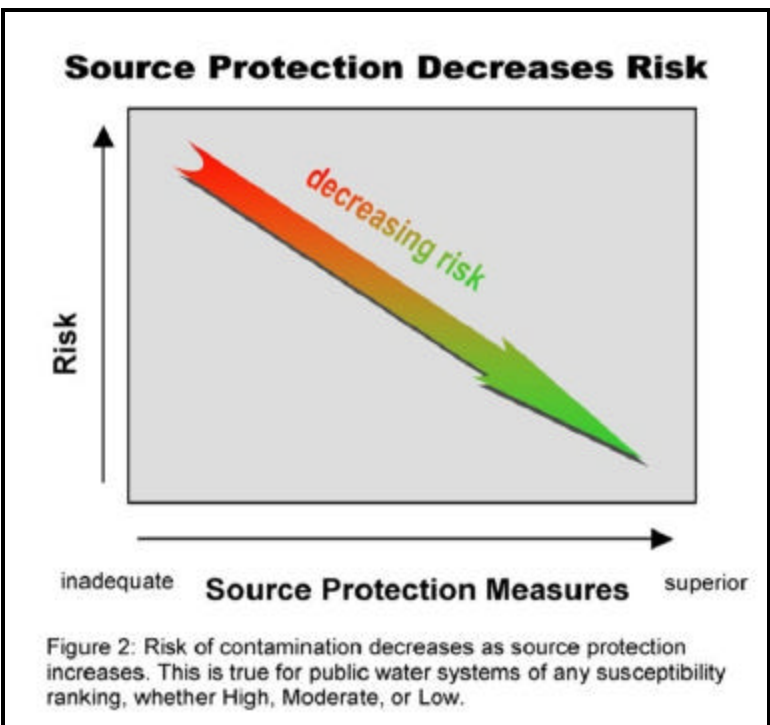
Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system’s Zone II contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Routinely sending source protection material to consumers
- Working with the Town to restrict road salt in subdivision

Implementing protection measures and best management practices (BMPs) will reduce the Springdale Farms Water Supply Trust Wells susceptibility to contamination. Springdale Farms Water Supply Trust should review and adopt the key recommendations above and the following:



Source Protection Recommendations:

- To better protect the sources for the future:
- ✓ Inspect the Zone Is regularly, and when feasible, remove any non-water supply activities.
 - ✓ Organize a wellhead protection committee comprised of stakeholders from both the public and private sectors to implement the Wellhead Protection Plan
 - ✓ Educate residents on ways they can help you to protect drinking water sources.
 - ✓ Locate stormwater drainage in your Zone II and cooperate on responding to spills or accidents.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

(Continued on page 6)

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Potential Source of Contamination
Residential			
Fuel Oil Storage (at residences)	Numerous	M	Spills, leaks, or improper handling of fuel oil
Lawn Care / Gardening	Numerous	M	Over-application or improper storage and disposal of pesticides and fertilizers
Septic Systems	Numerous	M	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous			
Stormwater Drains	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way	1	L	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	2	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Utility Substation Transformers	1	L	Spills, leaks, or improper handling of chemicals and other materials including PCBs

Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Attachments

- A. Protection Recommendations
- B. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with “Public Drinking Water Supply” Signs?	NO	Economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue routine inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES	Continue monitoring for non-water supply activities in Zone I that may have potential impact on wells .
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21 (2)?	YES	The Town of Dover adopted a Groundwater Protection General By-law in April 1992, and established a Water Supply Protection District in 1995. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	N/A	
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Coordinate efforts with the Town of Dover to develop a comprehensive wellhead protection plan. Follow “Developing a Local Wellhead Protection Plan” available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal “Emergency Response Plan” to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens’ groups, local community, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	N/A	
Does the PWS provide wellhead protection education?	YES	Through direct mailings and consumer confidence report. Continue to aim wellhead protection efforts at residential uses within the Zone II.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Dracut Water Supply District

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Dracut Water Supply District
<i>PWS Address</i>	59 Hopkins Street
<i>City/Town</i>	Dracut, Massachusetts 01826
<i>PWS ID Number</i>	3079000
<i>Local Contact</i>	Gary McCarthy - Superintendent
<i>Phone Number</i>	(978) 957-0441

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

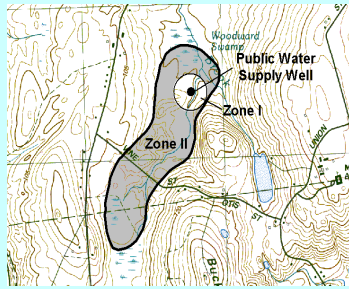
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 555

Susceptibility: Moderate

<i>Well Names</i>	<i>Source IDs</i>
New Boston Road Well #2	3079000-02G
New Boston Road Well #1	3079000-03G

Zone II #: 556

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Frost Road Well #1	3079000-04G
Frost Road Well #2	3079000-05G
Frost Road Well #3	3079000-06G
Frost Road Well #4	3079000-07G
Frost Road Well #5	3079000-08G

The wells for the Dracut Water Supply District are located in two separate Zone IIs that extend over the border into New Hampshire. The New Boston Road Wells are in the northern portion of Dracut near the border with New Hampshire. The Frost Road Wells are located in the northern portion of Tyngsboro near the border with New Hampshire. Frost Road Well #1 (04G) and the New Boston Road Well #2 (02G) are inactive, while the other wells are all active. Each well has a Zone I of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map to view the boundaries of the Zone II.

The New Boston Road Well #2 is considered to be producing groundwater under the direct influence of surface water (GWUDI). A GWUDI source could potentially be impacted by contaminants that are transported by surface water features and surface water run-off located within the entire Zone III. Therefore, in addition to the Zone II area, land uses within the remainder of the Zone III are also addressed in this report. See the attached map, which includes the Zone III boundary. For more information please contact the DEP Drinking Water Program or the Public Water Supplier.

All wells have potassium hydroxide added for corrosion control. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The Zone IIs for Dracut are primarily a mixture of residential, commercial, and forested land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Inappropriate activities in Zone I
2. Residential land uses
3. Transportation corridors
4. Hazardous materials storage and use
5. Oil or hazardous material contamination sites
6. Comprehensive wellhead protection planning

The overall ranking of susceptibility to contamination for the Frost Road wells is high, based on the presence of at least one high threat land use within the water supply protection area as seen in Table 2. The susceptibility of the New Boston Road wells is moderate, based on the presence of at least one moderate threat land use within the water supply protection area, as seen in Table 2.

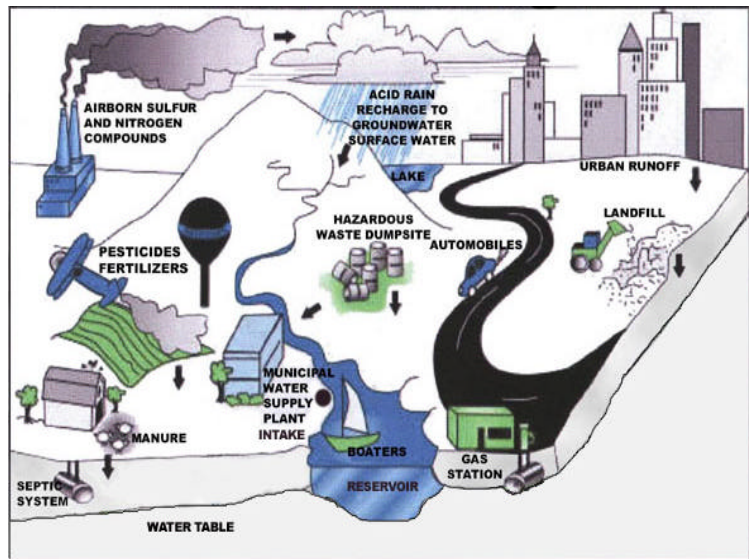


Figure 1: Sample watershed with examples of potential sources of contamination.

1. Inappropriate Activities in Zone Is – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. The Zone Is for the seven wells are owned or controlled by the public water system, with the exception of the New Boston Well #1 (03G). Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone Is for Dracut only contain water supply

activities, with the exception of the New Boston Well #1 (03G), which contains a portion of one residential property.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Residential Land Uses – Residential areas are common throughout the Zone IIs. Some of the areas have public sewers, and some use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic

**When you fertilize the lawn,
Remember
you're not just fertilizing the lawn.**

It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

For Massachusetts Department of Environmental Protection, City Water Street, Boston, MA 02108

systems fail or are not properly maintained they can be a potential source of microbial contamination.

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Transportation Corridors - Route 3A runs through the Frost Road Well Zone II (#556) northeast of the wells. Local roads are common throughout both Zone IIs. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins.

Transportation Corridor Recommendations:

- ✓ Identify stormwater drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge stormwater outside of the Zone II.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

4. Hazardous Materials Storage and Use – The Zone IIs contain commercial and industrial land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources*
Commercial				
Body Shops	1	H	556	Vehicle paints, solvents, and primer products: improper management
Service Stations/ Auto Repair Shops	3	H	556	Automotive fluids and solvents: spills, leaks, or improper handling
Cemeteries	1	M	556	Over-application of pesticides: leaks, spills, improper handling; historic embalming fluids
Golf Courses	1	M	556	Fertilizers or pesticides: over-application or improper handling
Industrial				
Electronics/ Electrical Manufacturers	1	H	556	Chemicals and process wastes: spills, leaks, or improper handling or storage
Industry/Industrial Parks	3	H	556	Industrial chemicals and metals: spills, leaks, or improper handling or storage
Residential				
Fuel Oil Storage (at residences)	Numerous	M	Both	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	Both	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	Numerous	M	Both	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous				
Aboveground Storage Tanks	2	M	556	Spills, leaks, or improper handling of materials stored in tanks
Oil or Hazardous Material Sites	1	--	556	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	1	M	556	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Small Quantity Hazardous Waste Generators	5	M	556	Hazardous materials and waste: spills, leaks, or improper handling or storage

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources*
Miscellaneous				
Stormwater Drains/ Retention Basins	Numerous	L	556	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way: electric	1	L	556	Corridor maintenance pesticides: over-application or improper handling; construction
Transportation Corridors	1	M	556	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling
Very Small Quantity Hazardous Waste Generators	4	L	556	Hazardous materials and waste: spills, leaks, or improper handling or storage
Table 2 Notes:				
<ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. 				
<p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

5. Presence of Oil or Hazardous Material Contamination Sites – The Zone II for the Frost Road Wells contains a DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Numbers 2-0010348. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

6. Protection Planning – Currently, the Town is in the process of adopting water supply protection controls. When the process is complete, they will be reviewed to see that they meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Coordinate efforts with the Town of Tyngsboro to include Dracut’s source protection areas in local wellhead protection controls. If Tyngsboro’s local wellhead protection controls do not meet the current MA Wellhead Protection Regulations 310 CMR 22.21(2) request that the Town adopt controls that meet 310 CMR 22.21(2). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Zone II are included in Table 2. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.



Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- New buildings for the Frost Road Wells #1 and #3.
- Development of a local wellhead protection bylaw
- Well monitoring through an automatic SCADA computer system.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.

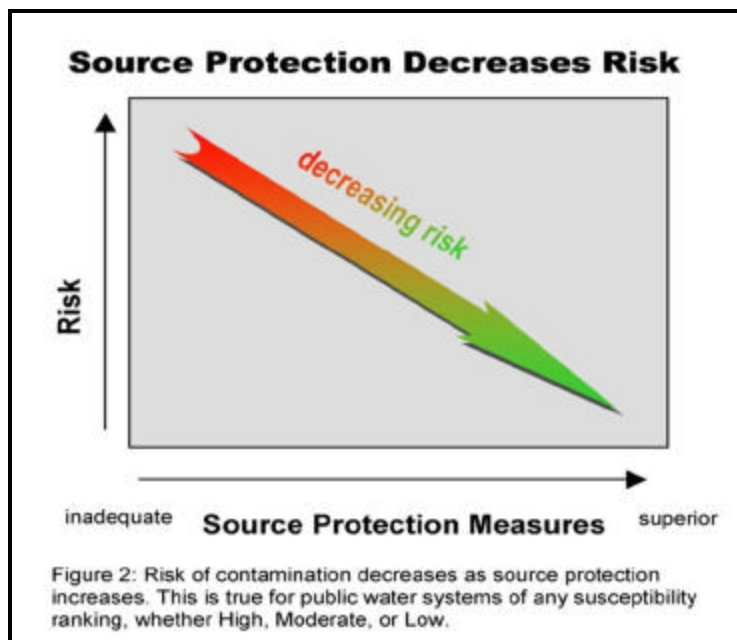


Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	NO	All are owned and controlled except for New Boston Well #1 (03G). Notify residents within the Zone I and follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Continue monitoring non-water supply activities in Zone I of New Boston Well #1 (03G).
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO	Submit final "Aquifer Protection District" bylaw to DEP to ensure that it meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	NO	Work with neighboring municipalities to include Zone IIs in their wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	NO	Aim efforts at residential, commercial, industrial and municipal uses within the Zone II.

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or hazardous materials contamination site.
- ✓ Develop and implement a Wellhead Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

APPENDIX A: DEP PERMITTED FACILITIES WITHIN DRACUT'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
137370	Advanced Alternative, Inc.	647 Chapman Street	Canton	Fuel Dispenser	Fuel Dispenser Stage II
35375	Bills Auto Repair	599 Neponset Street	Canton	Handler	Very Small Quantity Generator
35375	Bills Auto Repair	599 Neponset Street	Canton	Fuel Dispenser	Fuel Dispenser Stage II
324891	Blue Hill Press	480 Neponset Street	Canton	Handler	Very Small Quantity Generator
324891	Blue Hill Press	480 Neponset Street	Canton	Handler	Very Small Quantity Generator - Waste Oil/Pcbs Only
36897	Canton Auto Clinic	1047 Turnpike Street	Canton	Handler	Very Small Quantity Generator
26517	Crathco Inc	480 Neponset Street	Canton	Handler	Very Small Quantity Generator
215619	Downey Joe Chevrolet Inc.	1027 Turnpike Street	Canton	Handler	Very Small Quantity Generator
215619	Downey Joe Chevrolet Inc.	1027 Turnpike Street	Canton	Handler	Large Quantity Generator - Waste Oil/Pcbs Only
130458	Draper Properties Inc.	28 Draper Lane	Canton	Plant	AQ Synthetic Minor W/Restr Pte < Or = 25% Of Maj
130458	Draper Properties Inc.	28 Draper Lane	Canton	Discharge	MWRA Sewer Connection
130469	Emerson & Cuming Composites Material Inc.	59 Walpole Street	Canton	TURA Reporter	Large Quantity Toxic User

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
130469	Emerson & Cuming Composites Material Inc.	59 Walpole Street	Canton	Handler	Small Quantity Generator
216787	Grindmaster Corporation	480 Neponset Street	Canton	Discharge	MWRA Sewer Connection
227867	Massachusetts Hospital School	3 Randolph Street	Canton	Plant	AQ Synthetic Minor W/Restr But <Or= 50% Of Maj
227867	Massachusetts Hospital School	3 Randolph Street	Canton	Handler	Very Small Quantity Generator
284322	Otis Clapp And Sons Inc.	115 Shawmut Road	Canton	Discharge	MWRA Sewer Connection
258544	Sherman Printing Company Inc.	1020 Turnpike Street	Canton	Handler	Small Quantity Generator
258544	Sherman Printing Company Inc.	1020 Turnpike Street	Canton	Handler	Small Quantity Generator - Waste Oil/Pcbs Only
135687	Sun Company Inc.	702 Neponset Street	Canton	Handler	Very Small Quantity Generator
126606	Sunoco	2782 Washington Street	Canton	Fuel Dispenser	Fuel Dispenser Stage II
216809	Tamfelt Inc.	28 Draper Lane	Canton	Discharge	MWRA Sewer Connection
130470	TDL Incorporated	550 Turnpike Street	Canton	Handler	Very Small Quantity Generator
130470	TDL Incorporated	550 Turnpike Street	Canton	Plant	AQ Natural Minor W/ PTE < Or = 25% Of Maj
53500	Town of Canton	1492 Washington Street	Canton	Discharge	MWRA Sewer Connection

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131201	New England Sinai Hospital	150 York Street	Stoughton	Handler	Small Quantity Generator
35695	Will CC Materials Corp.	168 Washington Street	Stoughton	Handler	Very Small Quantity Generator

UNDERGROUND STORAGE TANKS WITHIN DRACUT'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
Bills Auto Repair	599 Neponset Street	Canton	Gas Station	10000	Gasoline
Bills Auto Repair	599 Neponset Street	Canton	Gas Station	8050	Gasoline
Mass Hospital School	3 Randolph Street	Canton	Medical Facility	2500	Gasoline
Sunoco	702 Neponset Street	Canton	Gas Station	15000	Gasoline
Sunoco	702 Neponset Street	Canton	Gas Station	15000	Gasoline
New England Sinai Hospital	150 York Street	Stoughton	Medical Facility	1500	Diesel

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Dracut Water Supply Protection Areas

DEP's datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP's Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP's Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state's OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
2-0010348	11 12 Waterway Place	Tyngsborough	Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Essex Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Essex Water Department
<i>PWS Address</i>	44 Centennial Grove Road
<i>City/Town</i>	Essex, Massachusetts 01929
<i>PWS ID Number</i>	3092000
<i>Local Contact</i>	Damon Boutchie – Chief Operator
<i>Phone Number</i>	(978) 768-6431

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

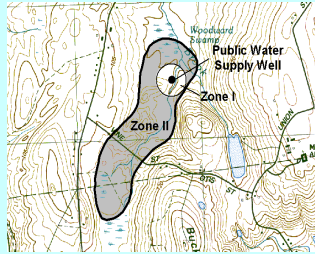
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 535

Susceptibility: High

Well Names	Source IDs
Harry Homans Well #1	3092000-01G
Harry Homans Well #2	3092000-02G
Centennial Grove Well #3	3092000-03G

The wells for the Essex Water Department are all located within the same water supply protection area, with a small segment of the northwest portion extending into the town of Hamilton. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone II for Essex is a mixture primarily of residential, wetlands, forest, and commercial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Residential land uses
3. Hazardous materials storage and use
4. Landscaping Activities
5. Comprehensive wellhead protection planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone Is – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The following non-water supply activities occur in the Zone Is of the system wells:

Harry Homans Well #1 (3092000-01G) - There is a portion of a private house lot and a garage in the Zone I of this well.

Harry Homans Well #2 (3092000-02G) - There is a home and a portion of Harry Homans Drive in the Zone I of this well.

Zone I Recommendations:

- ✓ **Septic System Relocation** – Coordinate efforts with landowners to identify the location of septic systems, and if needed, to determine the feasibility of relocating septic systems outside of the Zone I.
- ✓ **Remove Non-Water Supply Activities** - To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP’s Zone I requirements.
- ✓ **Storage** - Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ **Non-Water Supply Activities** - Keep any new non-water supply activities out of the Zone I.

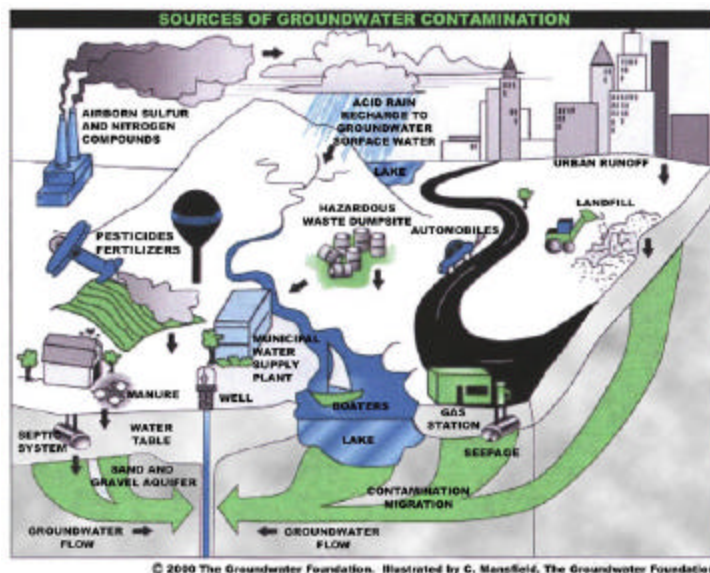
2. Residential Land Uses – Approximately 35% of the Zone II consists of residential areas. None of the areas have public sewers, and so all use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- ◆ **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- ◆ **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- ◆ **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

- ◆ **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.



- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Hazardous Materials Storage and Use – Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs) and/or Aboveground Storage Tanks (ASTs). If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP’s for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floordrain requirements. See brochure “Industrial Floor Drains” for more information.

What are “BMPs?”

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

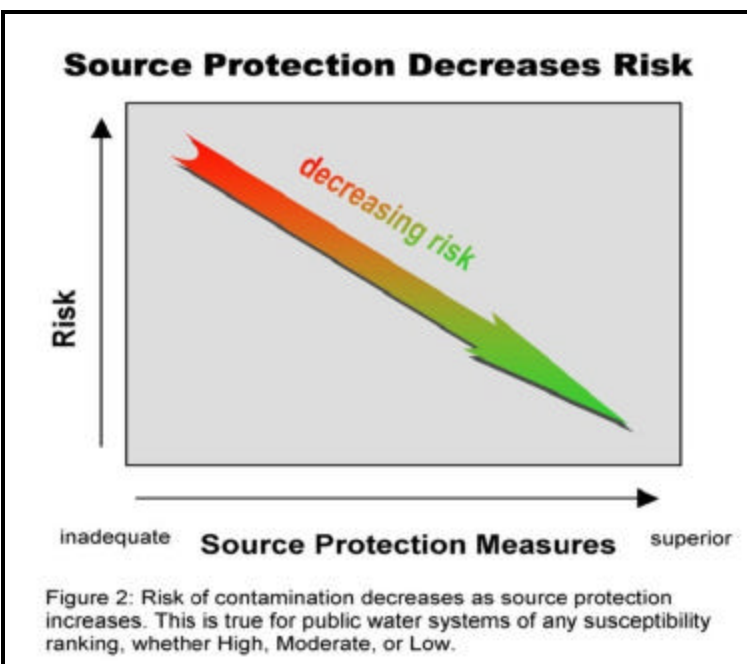
4. Landscaping Activities – Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed.

If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Landscaping and Agricultural Activities Recommendation:

- ✓ Encourage landscape managers to incorporate an **Integrated Pest Management (IPM)** approach into their pest management program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other agricultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote **Best Management Practices (BMPs)** for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Work with landscapers to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.

5. Protection Planning – Currently, the Town does not have water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.



Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ If local controls do not regulate floordrains, be sure to include floordrain controls that meet 310 CMR 22.21(2).
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). If there are no local controls or they do not meet the current regulations, adopt controls that meet 310 CMR 22.21(2). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Potential Source of Contamination
Fertilizer Storage or Use	1	M	Leaks, spills, improper handling, or over-application of fertilizers
Landscaping	3	M	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Pesticide Storage or Use	1	H	Leaks, spills, improper handling, or over-application of pesticides
Commercial			
Gas Stations	1	H	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	2	H	Spills, leaks, or improper handling of automotive fluids, and solvents
Residential			
Fuel Oil Storage	Numerous	M	Spills, leaks, or improper handling of fuel oil
Lawn Care / Gardening	Numerous	M	Over-application or improper storage and disposal of pesticides
Septic Systems / Cesspools	Numerous	M	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous			
Aboveground Storage Tanks	2	M	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	1	L	Microbial contaminants
Stormwater Drains/ Retention Basins	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way - Type: <u>natural gas</u>	1	L	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	1	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	2	H	Spills, leaks, or improper handling of stored materials
Water Treatment Sludge	3	M	Improper management of sludge and wastewater

Notes:

- When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
- For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
- For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

◆ **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Large scale sewerage project that includes a majority of the Zone II.
- Enforcement of existing Water Resource Protection District Bylaw.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Develop and implement a Wellhead Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES (Centennial Grove)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Harry Homans)	Investigate options for gaining ownership or control for Harry Homans Well #1 and Well #2. Take measures to prevent additional non-water supply activities from occurring in the Zone I.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Monitor non-water supply activities in Zone Is, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO	Continue working with Planning Board to adopt land use controls that meet The Town "Aquifer Protection District" bylaw meets 310 CMR 22.21(2). Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	YES	Hamilton has incorporated adjacent community Zone IIs in their Groundwater Protection Overlay District. Submit a copy to Hamilton of the Essex Zone II so that it may be incorporated into Hamilton's Groundwater Protection Overlay District Map.
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN ESSEX WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
326085	CORAIL KELLY	14 CENTENNIAL GROVE ROAD	ESSEX	HOLDING TANK APPROVAL	INDUSTRIAL WASTE WATER HOLDING TANK
133481	FRENCHIES	153R WESTERN AVE	ESSEX	HANDLER	Very Small Quantity Generator
133481	FRENCHIES	153R WESTERN AVE	ESSEX	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
320057	GAYBROOK GARAGE	152 WESTERN AVE	ESSEX	FUEL DISPENSER	Fuel Dispenser
35651	HIDDEN DAVE	204 WESTERN AVE	ESSEX	HANDLER	Very Small Quantity Generator

Underground Storage Tanks

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
GAYBROOK GARAGE	152 WESTERN AVENUE	ESSEX	SERVICE STATION	10000	GASOLINE
GAYBROOK GARAGE	152 WESTERN AVENUE	ESSEX	SERVICE STATION	6000	GASOLINE

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Georgetown Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

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A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Georgetown Water Department
<i>PWS Address</i>	1 Moulton Street
<i>City/Town</i>	Georgetown
<i>PWS ID Number</i>	3105000
<i>Local Contact</i>	Wilfred Kelley - Water Superintendent
<i>Phone Number</i>	978-352-5750

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

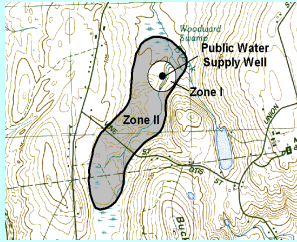
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This report includes the following sections:

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2. Land Uses within Protection Areas
3. Source Water Protection
4. Additional Resources Available for Source Protection
5. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

Zone II #: 220

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Tubular Wellfield	3105000-01G
Metcalf GP Well	3105000-02G
William Marshall GP Well	3105000-03G
Commissioner's Well	3105000-04G
Ronald Marshall GP Well	3105000-05G

The wells for the Georgetown Water Department are located within a water supply protection area that has portions extending into Boxford and Groveland. Each well has a Zone I radius of 400 feet, except for the Tubular Wellfield, which has a 250 foot Zone I. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II. The Tubular Wellfield and the Metcalf Well are no longer in use.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Discussion of Land Uses in the Protection Areas

The Zone II for Georgetown is predominantly forested and residential, with a small portion of commercial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key issues include:

1. Residential Land Uses and Activities
2. Transportation Corridors
3. Oil or Hazardous Material Contamination Sites
4. Unregistered Leaf and Yard Waste Composting Operation
5. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for Georgetown is high, based on the presence of at least one high threat land use within the Zone II, as seen in Table 2.

1. Residential Land Use - If managed improperly, household hazardous waste, septic systems, lawn care, and pet waste can all contribute to groundwater contamination. Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances.

If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Fertilizers and pesticides contain hazardous chemicals that can travel through the soil and contaminate ground water if over-applied. Pet waste may contain bacteria, parasites, or viruses that pose a health risk. Water supplies may also be threatened from improper use or disposal of chemical products used in homes. Educating residents on proper disposal of these materials is the best defense against pollution.

Residential Recommendations - Household Hazardous Waste:

- ✓ **Proper Disposal** - Educate residents on the problem of disposing of hazardous materials in landfills, septic systems, wastewater treatment plants, storm drains, and on the ground. Encourage residents to participate in the Town of Rowley's annual Household Hazardous Waste Collection Day.
- ✓ **Alternative Products** - Provide residents with information on options that are available to substitute less hazardous substances for many products used in the home.

Residential Recommendations - Septic systems:

- ✓ **System Care** - Educate residents on private septic systems about using cleaning compounds that are safe for the septic system, on proper disposal practices, i.e. only sanitary waste in the septic system. Information on septic systems can be found at Massachusetts Department of Environmental Protection's website <http://www.state.ma.us/dep/brp/files/yoursyst.htm>.
- ✓ **Proper Disposal** - Residents should dispose of used oil, antifreeze, paints, and other household chemicals properly - not in septic systems.

Residential Recommendations - Lawn Care and Landscaping:

- ✓ **Environmentally Sound Lawn Care** - Provide educational materials to residents about the proper application of pesticides or fertilizers. Landscape with native grasses, native flowering plants and trees and shrubs. Once established, native plants require less water and may not require fertilizer, herbicide or pesticide use. Encourage the use of native plants and landscaping by establishing a demonstration area at a town facility. Information on environmentally sound lawn care practices can be obtained from the Massachusetts Department of Food and Agriculture Pesticide Bureau's website at <http://www.massdfa.org>.

Residential Recommendations - Heating Oil Tanks:

- ✓ **Aboveground Storage Tanks** - Provide educational materials to residents regarding the proper storage of liquid petroleum products in aboveground storage tanks. The Department requires all Wellhead protection zoning and non zoning controls to prohibit the siting of liquid petroleum products storage in Zone II unless such storage is aboveground, on an impervious surface and either in a container or

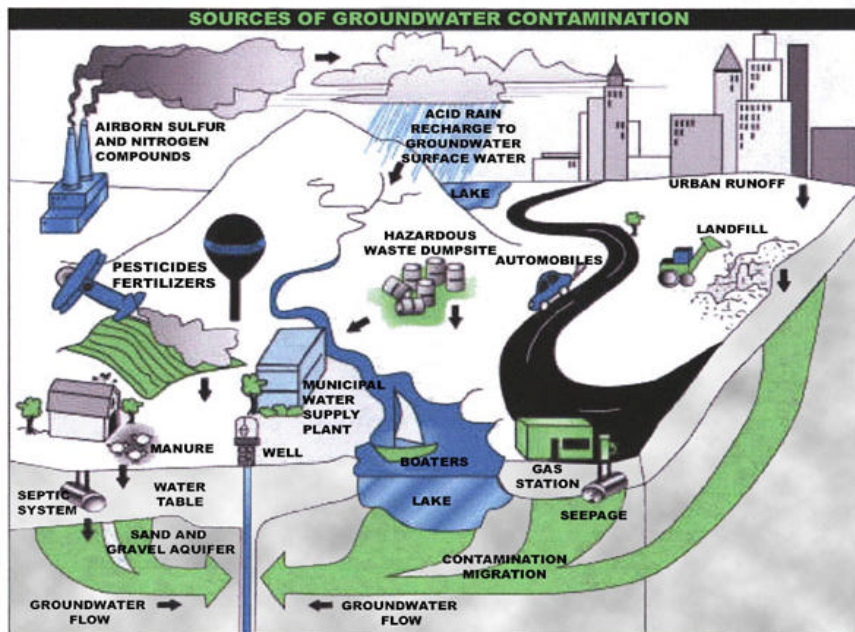
in an aboveground tank within a building, or in an area that has a containment system designed and operated to hold either 10 percent of the total possible storage capacity of all containers, or 110% of the largest container storage capacity whichever is greater.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



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Consult with the local fire department for any additional local code requirements regarding aboveground storage tanks. A fact sheet on basement or outside oil tank can be obtained from the Barnstable County Department of Health And Environment at <http://www.CapeCod.net/bcdhe/oil/oil.htm>.

2. Transportation Corridor -

Roadway construction, maintenance, and typical road use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. De-icing salt washes off into storm drains or onto adjacent ground. In addition, roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

Transportation Corridor - Recommendations:

- ✓ **Design and Best Management Practices** – Contact the Massachusetts Highway Department and the Georgetown Department of Public Works to determine if the stormwater drainage systems along Route 133 and local roads conform to structural Best Management Practices (BMPs) to prevent pollution from storm water affecting the water quality of Georgetown’s wells. Best management practices reduce or prevent pollution from reaching water bodies and control the quantity/quality of runoff from a site (refer to *Storm Water Management Handbook*, volume 1 and 2 for information on structural BMPs located in attachments).

3. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains a DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Numbers 3-0018179.

For more information refer to the attached map, Appendix C, and the Bureau of Waste Site Cleanup’s website at <http://www.state.ma.us/dep/bwsc/sitelist.htm>



Oil or Hazardous Material Contamination Sites – Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or hazardous material contamination sites.

4. Unregistered Leaf and Yard Waste Composting Operation - If not carefully controlled, the composting process can create a number of environmental concerns including air and water pollution. Water pollution from leachate or runoff is a potential concern at composting facilities. Leachate is liquid that has percolated through the compost pile and that contains extracted, dissolved, or suspended material from the pile. If allowed to run untreated and unchecked from the composting pile, leachate can seep into and pollute ground water and surface water. Runoff is water that flows over surfaces without being absorbed. There are many ways to prevent and control leachate and runoff at composting operations. Many of these concerns can be minimized through the proper design and operation of a facility. In addition, simple procedures often can be implemented to reduce the impact of the facility on the environment.

DEP requires that all municipal and commercial leaf and yard waste composting operations register with the DEP. The purpose of the registration is to assist DEP in insuring that leaf and yard waste composting operations are sited and operated such that they do not cause negative environmental impacts, such as those noted above.

Unregistered Leaf and Yard Waste Composting Operation - Recommendations

- ✓ Work with the property owner to properly register the composting operation. For more information regarding DEP leaf and yard waste composting registration, contact Barbara Scavezze at (978) 661-7600.

5. Comprehensive Wellhead Protection Planning - Protection planning prevents drinking water contamination by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are numerous resources available to help communities in developing a plan for protecting drinking water supply wells.

What are "BMPs?"

Best Management Practices are structural (i.e. oil & grease trap catch basins), nonstructural (i.e. hazardous waste collection days) or managerial measures that are used to protect and improve surface water and groundwater quality.

Protection Planning Recommendations:

- ✓ **Develop A Land Acquisition Plan** - Land acquisition projects protect water supplies by limiting the land development potential. Acquisitions can be accomplished by water systems through conservation restrictions, land banking, land purchases and land donations. Sample conservation restrictions are available at: <http://www.state.ma.us/dep/brp/dws/>. Future development of Zone II is a major concern. The Department recommends that the water district acquire Zone II land closest to the Zone I or land that is subject to high-risk development (refer to Developing a local Wellhead Protection Plan).
- ✓ **Local Controls** - Coordinate efforts with local officials in Boxford, and Groveland to compare existing controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://www.state.ma.us/dep/brp/dws/>.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix 2: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Potential Source of Contamination*
Commercial			
Junk Yards and Salvage Yards	1	H	Spills, leaks, or improper handling of automotive chemicals, wastes, and batteries
Residential			
Fuel Oil Storage (at residences)	Numerous	M	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	Numerous	M	Household hazardous waste: improper disposal, and microbial contaminants
Miscellaneous			
Composting Facilities	Several	L	Storage and improper handling of organic material, animal waste, and runoff
Oil or Hazardous Material Sites	1	---	Oil or hazardous materials and waste: spills, leaks, or improper handling or storage
Stormwater Drains/Retention Basins	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way Type: <u>electric</u>	1	L	Construction and corridor maintenance, over-application or improper handling of pesticides
Transportation Corridors (local roads)	Numerous	M	Fuels and other hazardous materials: accidental leaks or spills, over-application or improper handling of pesticides

Water Supply Protection Area % that is Sewered = 0%

Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

- ✓ **Inspection Program** - Develop and implement an Inspection Program for facilities that generate, use, store, or dispose of hazardous/toxic materials. Local Board of Health and Building Inspectors working on inspections often include floor drain and underground storage tanks. Local inspection programs can provide valuable technical assistance on Best Management Practices.

Other land uses and activities that may be potential contaminant sources include gas stations, stormdrains, and junk yards. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential contaminant sources is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential contaminant sources are identified, specific recommendations like those below should be used to better protect Georgetown's wells.

Section 3: Source Water Protection

Implementing source protection measures and Best Management Practices (BMPs) will reduce the Georgetown Water Department System's susceptibility to contamination. Additional source protection recommendations are listed in Table 3 and the Key Issues above.

Georgetown Water Department is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- ❖ Adopting, through a Zoning Bylaw, a Groundwater Protection Overlay District that meets current MA Wellhead Protection Regulations 310 CMR 22.21(2)
- ❖ Conducting educational programs to elementary school students, and making fact sheets available to the public
- ❖ Purchasing significant portions of the Zone II for source protection purposes.

Appendix 1 includes specific recommendations for each of the following:

➤ **Partner with Local Businesses:**

Since many small businesses and industries use hazardous materials and produce hazardous waste products, it is essential to educate the business community about drinking water protection. Encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

➤ **Provide Outreach to the Community:**

Public education and community outreach ensure the long-term protection of drinking water supplies. Awareness often generates community cooperation and support. Residents and business owners are more likely to change their behavior if they know where the wellhead protection recharge area is located; what types of land uses and activities pose threats; and how their efforts can enhance protection.

➤ **Plan for the Future:**

One of the most effective means of protecting water supplies is planning, such as the adoption of local controls to protect watersheds and ground water. These controls may include health regulations, general ordinances, and zoning bylaws that prohibit potential sources of contamination from wellhead protection areas.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. These recommendations are only part of your ongoing local drinking water source protection.

Section 4: Additional Resources Available for Source Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The assessment and protection recommendations in this SWAP report are provided as a tool to spur community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

The Georgetown Water Department should supplement this SWAP report with local information on potential sources of contamination and land uses. To aid in the protection of the wells, local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Funding Resources:

The Department’s Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing Water Supply Source Protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. For additional information, please refer to the program fact sheet from this year. Please note: each spring DEP posts a new Request for Response for the Grant program (RFR).

The Aquifer Land Acquisition Program protects both surface and groundwaters used for drinking water purposes. Land acquisition is considered to be the single best way to protect a drinking water supply. Land acquisitions for water supply protection purposes include outright purchases, conservation restrictions, land donations, and interest in land taken by eminent domain. These funds will be available to water suppliers and

municipal governments through the process described below. All publicly owned water suppliers, districts, or municipalities are invited to express an interest by submitting a Statement of Need covering any land purchase expected to be made to protect a public water supply that can be completed by June 30, 2002. The Department of Environmental Protection will select respondents of the Draft Statement of Need to submit a completed Final Statement of Need based on DEP land acquisition standard operating procedures, ability to use the funds by June 30, 2002, and other environmental criteria as determined necessary by the Secretary and Commissioner.

For further information on the Aquifer Land Acquisition Program, contact Joseph McNealy, Director of Program Development, Department of Environmental Protection, at (617) 556-1068.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, Aquifer Land Acquisition Program, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection’s Municipal Services web site at: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm>.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP’s Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Section 5: Appendices

1. Protection Recommendations
2. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
3. Additional Documents on Source Protection in Georgetown

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES	Monitor for non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	Monitor activities in Zone II to assure compliance with local wellhead protection controls.
Do neighboring communities protect the Zone II areas extending into their communities?	Unknown	Request that municipal officials in Boxford, Groveland and Ipswich develop land use restrictions that meet 310 CMR 22.21 (2).
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community
Does the Board of Health conduct inspections of commercial and industrial activities?	Uncertain	Coordinate efforts with the Board of Health and Fire Department to conduct inspections. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc .
Does the PWS provide wellhead protection education?	YES	Continue and expand education outreach programs. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial uses within the Zone II.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Gloucester Water Division

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Gloucester Water and Sewer Division
<i>PWS Address</i>	Poplar Street
<i>City/Town</i>	Gloucester, Massachusetts 01930
<i>PWS ID Number</i>	3107000
<i>Local Contact</i>	Christine Millhouse
<i>Phone Number</i>	(978) 281-9792

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

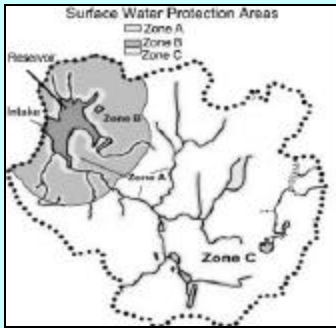
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Section 1: Description of the Water System

Surface Water Sources

Source Name	Source ID #	Susceptibility
Babson Reservoir	3107000-01S	High
Haskell Reservoir	3107000-02S	Medium
Wallace Reservoir	3107000-03S	Medium
Dykes Meadow Reser-	3107000-04S	Low
Goose Cove Reservoir	3107000-07S	Medium

The reservoirs for the Gloucester Water Division are located within five separate water supply protection areas, with a portion of Babson Reservoir's extending into the town of Rockport. Gloucester hopes to upgrade Klondike Quarry Reservoir, which is presently an emergency source, to active use.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone Cs for Gloucester are primarily a mixture of forest and residential, with a small portion of the Zone C for Babson Reservoir consisting of industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone A
2. Local Businesses
3. Residential Land Uses
4. Comprehensive Surface Water Protection Planning

The ranking of susceptibility to contamination for Babson Reservoir Zone C is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2; the ranking of susceptibility to contamination for Haskell Reservoir, Wallace Reservoir, and Goose Cove Reservoir Zone Cs is medium, based on the presence of at least one medium threat land use within the water supply protection areas, as seen in Table 2; and, the ranking of susceptibility to contamination for Dykes Meadow Reservoir is low, based on low threat land uses within the water supply protection area.

1. Activities in Zone A - Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and un-permitted and unauthorized activities. Wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. The following activities occur in the Zone A of the system's reservoirs:

Babson Reservoir - Railroad tracks associated with the commuter rail run from the northeast to the southwest portion of the Zone A for Babson Reservoir.

Glossary Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals. In addition to the railroad tracks, there is an underground storage tank (UST) that contains fuel oil. USTs can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Haskell Reservoir - Route 128 runs from the northeast to the southwest portion of the Zone A for Haskell Reservoir. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. De-icing salt washes off into stormdrains or onto adjacent ground. In addition, roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Wallace and Goose Cove Reservoirs - There are houses on private septic systems located in the Zone A for both Wallace and Goose Cove Reservoirs. Common potential sources of contamination include those associated with septic systems, household hazardous materials, heating oil storage, and stormwater.

Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.
- ✓ Identify stormwater drains and the drainage system along transportation corridors. Work to better manage stormwater by pre-treating contaminated stormwater and/or redirecting stormwater outside of the Zone A.

2. Local Businesses – Because many small businesses and industries use hazardous materials, produce hazardous waste products, and often store large quantities of petroleum products, there is the potential for degrading water quality. Educating the business community about drinking water protection, and encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

Local Businesses - Recommendations:

- ✓ **Hazardous Materials Program Best Management Practices** - Support the development and implementation of a hazardous materials program that includes an Ordinance or Health Regulation. 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. See DEP's website for additional information on developing a program for hazardous materials management at <http://www.state.ma.us/dep/brp/dws/files/hazmat.doc>.

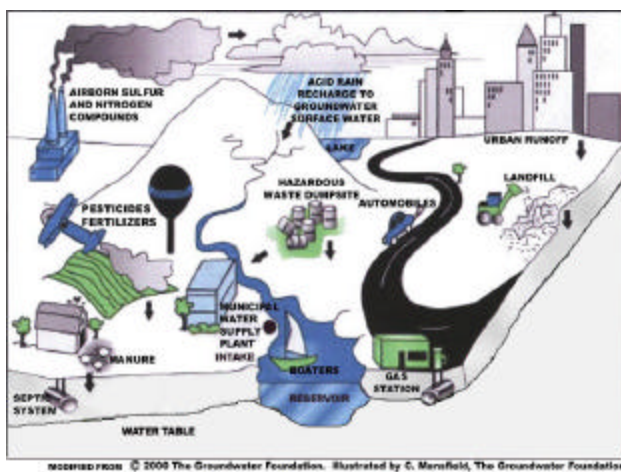


Figure 1: Sample watershed with examples of potential sources of contamination

- ✓ **Inspection Program** – Coordinate efforts with local officials in the development and implementation of an Inspection Program to prevent hazardous substances from entering water supplies. Inspections target facilities that generate, use, store, or disposal of hazardous/toxic materials. Programs can also include floor drain and underground storage tanks inspections. Local inspection programs often provide educational material and technical assistance on Best Management Practices. Building Inspectors are often involved in local inspection programs.
- ✓ **Hazardous Materials Best Management Practices** - Work with local businesses to encourage training on proper hazardous material use, disposal, and emergency response. Refer to the attached list of resources for more information on hazardous material BMPs.

- ✓ **Storage Tanks** - Support your local fire department in upgrading all above and below ground oil/hazardous material storage tanks in order to meet current construction standards. Funding for replacing underground storage tanks is available through the MA Department of Revenue. For more information, refer to http://www.dor.state.ma.us/ust/ust_home.htm
- ✓ **Register Hazardous Waste Generators** - Work with local businesses to register with DEP those facilities that are unregistered generators of hazardous waste or waste oil.
- ✓ **Monitor Land Uses** - Work with the Selectmen, Board of Health and Planning Board to monitor land uses within and proximal to the Zone A and Zone C. Refer to the Developing a Local Surface Water Supply Protection Plan guidance at <http://www.state.ma.us/dep/brp/dws/protect.htm> for types of activities that should be prohibited and managed in the vicinity of public or private water supplies.
- ✓ **Lawn care and Landscaping** - Encourage local businesses to incorporate Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides. For more information, refer to http://www.massdfa.org/pesticides/publications/IPM_kit_for_bldg_mgrs.pdf

3. Residential Land Uses – Approximately 3% of the combined Zone Cs consist of residential areas, of which ninety-nine percent is served by municipal sewerage, with the remainder being private septic systems. If managed properly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

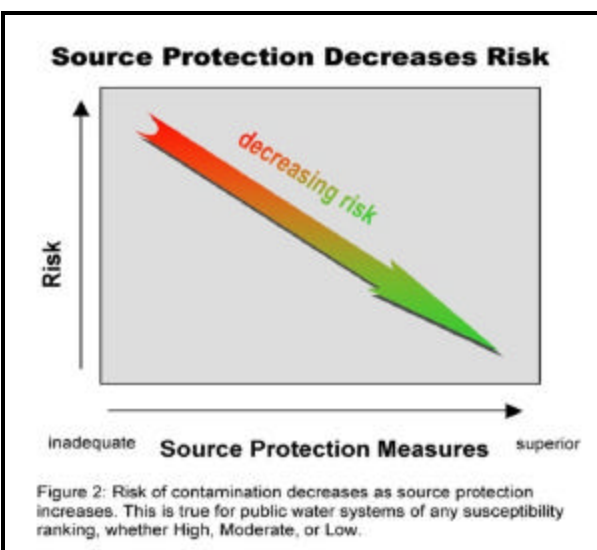
- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.

Residential Land Use Recommendations (continued):

- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

4. Protection Planning – The City of Gloucester has water supply protection controls that are implemented through a Watershed Protection Overlay District Ordinance. Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone C Source ID #	Potential Contaminant Sources*
Commercial				
Medical Facilities	1	M	01S	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes
Railroad Tracks And Yards	1	H	01S	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Industrial				
Hazardous Materials Storage	1	H	01S	Spills, leaks, or improper handling or storage of hazardous materials
Industry/Industrial Parks	1	H	01S	Spills, leaks, or improper handling or storage of industrial chemicals and metals
Residential				
Fuel Oil Storage (at residences)	Numerous	M	01S, 03S, 07S	Spills, leaks, or improper handling of fuel oil
Lawn Care/ Gardening	Numerous	M	01S, 03S, 07S	Over-application or improper storage and disposal of pesticides
Septic Systems/ Cesspools	Several	M	03S, 07S	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous				
Aquatic Wildlife	Numerous	L	01S, 07S	Microbial contaminants
Small quantity hazardous waste generators	2	M	01S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Numerous	L	01S, 02S	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	2	M	01S, 02S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	1	H	01S	Spills, leaks, or improper handling of stored materials
Utility Substation Transformers	1	L	01S	Spills, leaks, or improper handling of chemicals and other materials including PCBs

Land Uses	Quantity	Threat	Zone C Source ID #	Potential Contaminant Sources*
Miscellaneous				
Very Small Quantity Hazardous Waste Generator	2	L	01S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Water Treatment Sludge Lagoon	1	M	01S	Improper management of sludge and wastewater
Notes:				
<ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

A Water Resource Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supplies.

Protection Planning Recommendations:

- ✓ Develop a Watershed Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Surface Water Supply Protection Plan”.
- ✓ Coordinate efforts with local officials to compare local surface water protection controls with current MA Surface Water Supply Protection Regulations 310 CMR 22.20B and 310 CMR 22.20C. If local controls do not meet the current regulations, amend existing controls to meet 310 CMR 22.20B and 310 CMR 22.20C. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Other land uses and activities within the and Zone Cs that are potential sources of contamination are included in Table 2. Refer to Appendix A for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources.

Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system’s Zone Cs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

- Owning or controlling ninety percent of the Zone A of the combined sources.
- Adopting local land use controls for surface water protection. Local controls include: a Watershed Protection Overlay District Ordinance; hazardous materials controls; inspections of industrial facilities by the fire department; and, conducting regular inspections of the Zone A and watersheds

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ When feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone As and Zone Cs, and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Develop and implement a Surface Water Protection Plan.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A. DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The Department’s Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection’s Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the water supply protection areas. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP’s Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone A?	Approximately 90% of the combined Zone As is owned or controlled	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials. To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements.
Is the Zone A posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone A?	YES (Dykes Meadow Reservoir)	Continue monitoring for non-water supply activities in Zone As.
	NO (Babson, Haskell, Wallace, and Goose Cove Reservoirs)	Monitor prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C?	POSSIBLY	Work with the Planning Board and the City Council to review the existing Watershed Protection Overlay District Ordinance to determine if it meets land use controls required by 310 CMR 22.20B & C. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Work with Rockport to include Gloucester's watershed in their protection controls.
Planning		
Does the PWS have a local surface water protection plan?	NO	Develop a surface water supply protection plan. Follow "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	Fire Department	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone C.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN GLOUCESTER WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
207648	BATTENFIELD GLOUCESTER ENGINEERING CO.	11 DORY ROAD	GLOUCESTER	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
207648	BATTENFIELD GLOUCESTER ENGINEERING CO.	11 DORY ROAD	GLOUCESTER	HANDLER	SMALL QUANTITY GENERATOR
135145	VARIAN EXTRION	4 BLACKBURN CENTER	GLOUCESTER	HANDLER	RECYCLER – BURNER/BLENDER
135145	VARIAN EXTRION	4 BLACKBURN CENTER	GLOUCESTER	HANDLER	VERY SMALL QUANTITY GENERATOR
135145	VARIAN ION IMPLANT SYSTEMS	BLACKBURN INDUSTRIAL PARK	GLOUCESTER	HANDLER	SMALL QUANTITY GENERATOR

Underground Storage Tanks

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
OMNI-WAVE ELECTRONICS CORPORATION	BLACKBURN INDUSTRIAL PARK	GLOUCESTER	MANUFACTURER	10000	FUEL OIL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site:
<http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Groveland Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Groveland Water Department
<i>PWS Address</i>	183 Main Street
<i>City/Town</i>	Groveland, Massachusetts 01834
<i>PWS ID Number</i>	3116000
<i>Local Contact</i>	Glenn Smith - Superintendent
<i>Phone Number</i>	978-372-4144

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper storage, use and disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

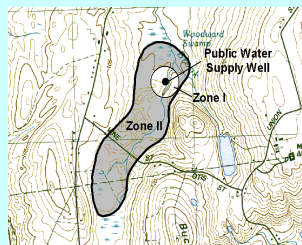
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

<i>Zone II: 344</i>		<i>Susceptibility: High</i>	
<i>Well Name</i>		<i>Source ID#</i>	
Main Street GP Well #1		3116000-01G	

<i>Zone II#: 355</i>		<i>Susceptibility: High</i>	
<i>Well Name</i>		<i>Source ID#</i>	
GP Well #3 Merrimack R.		3116000-03G	
GP Well #4 Merrimack R.		3116000-04G	

The Town of Groveland's Water System (Groveland) is supplied by three (3) wells that draw water from various locations throughout Groveland. The three (3) wells are located in two separate Zone IIs (refer to attached Source Water Assessment Program maps for individual well locations). Each well has a Zone I radius of 400 feet. The wells are located in aquifers with high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The land uses for both of Groveland's Zone IIs consist primarily of a mixture of residential, forested, industrial, and open land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key issues include:

1. Residential Land Uses and Activities
2. Local Businesses
3. Federal Superfund Site and Oil or Hazardous Material Contamination Sites
4. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for Groveland is high, based on the presence of at least one high threat land use within the Zone II, as seen in Table 2.

1. Residential Land Use and Activities - If managed improperly, household hazardous waste, septic systems, lawn care, and pet waste can all contribute to groundwater contamination. Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Fertilizers and pesticides contain hazardous chemicals that can travel through the soil and contaminate ground water if over-applied. Pet waste may contain bacteria, parasites, or viruses that are a health risk. Water supplies may also be threatened from improper use or disposal of chemical products used in homes or businesses. Educating residents and businesses on proper disposal of these materials is the best defense against pollution.

Residential Recommendations - Household Hazardous Waste:

- ✓ **Proper Disposal** - Educate residents on the problem of disposing of hazardous materials in landfills, septic systems, wastewater treatment plants, storm drains, and on the ground. Encourage residents to participate in the Town of Groveland's annual Household Hazardous Waste Collection Day. The Town of Groveland accepts pesticides, fertilizers, acids, harsh cleaners, oil paints, alkaline, and paint cleaners for recycling during this annual collection.
- ✓ **Alternative Products** - Provide residents with information on options that are available to substitute less hazardous substances for many products used in the home.

Residential Recommendations - Septic systems:

- ✓ **System Care** - Educate residents on private septic systems about using cleaning compounds that are safe for the septic system, on proper disposal practices, i.e. only sanitary waste in the septic system. Information on septic systems can be found at Massachusetts Department of Environmental Protections website <http://www.state.ma.us/dep/brp/files/yoursyst.htm>.
- ✓ **Proper Disposal** - Residents should dispose of used oil, antifreeze, paints, and other household chemicals properly - not in septic systems.

Residential Recommendations - Lawn Care and Landscaping:

- ✓ **Environmentally Sound Lawn Care** - Provide educational materials to residents about the proper application of pesticides or fertilizers. Landscape with native grasses, native flowering plants and trees and shrubs. Once established native plants require less water and may not require fertilizer, herbicide or pesticide use. Encourage the use of native plants and landscaping by establishing a demonstration area at a town facility. Information on environmentally sound lawn care practices can be obtained from the Massachusetts Department of Food and Agriculture Pesticide Bureau's website at <http://www.massdfa.org>.

Residential Recommendations - Heating Oil Tanks:

- ✓ **Aboveground Storage Tanks** - Provide educational materials to residents regarding the proper storage of liquid petroleum products in aboveground

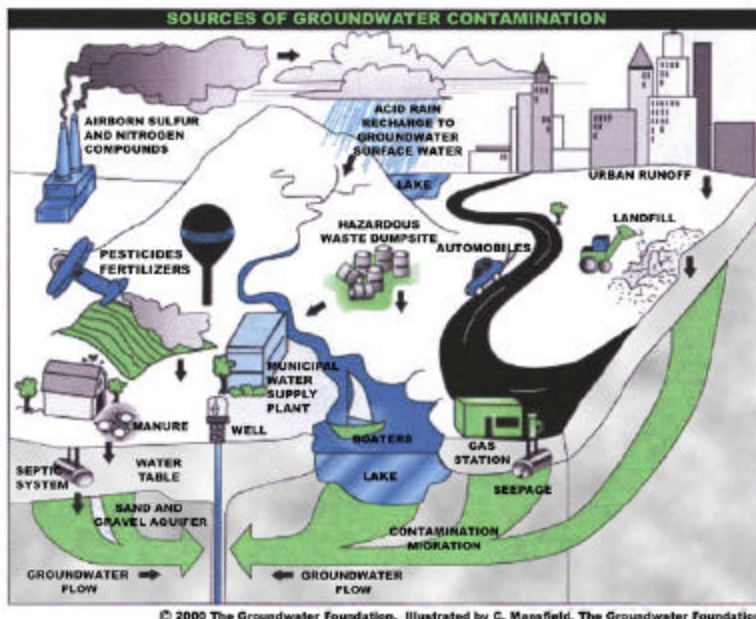
storage tanks. The Department requires all Wellhead protection zoning and non zoning controls to prohibit the siting of liquid petroleum products storage in Zone II unless such storage is aboveground, on an impervious surface and either in a container or in an aboveground tank within a building, or in an area that has a containment system designed and operated to hold either 10 percent of the total possible storage capacity of all containers, or 110% of the largest container storage capacity whichever is greater.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



Consult with the local fire department for any additional local code requirements regarding aboveground storage tanks. A fact sheet on basement or outside oil tank can be obtained from the Barnstable County Department of Health And Environment at <http://www.CapeCod.net/bcdhe/oil/oil.htm>.

2. Local Businesses – Because many small businesses and industries use hazardous materials, produce hazardous waste products, and often store large quantities of petroleum products, there is the potential for degrading water quality. Educating the business community about drinking water protection, and encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

Local Businesses - Recommendations:

- ✓ **Hazardous Materials Program** - Support the development and implementation of a hazardous materials program that includes a Bylaw or Health Regulation. 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. See DEP's website for additional information on developing a program for hazardous materials management at <http://www.state.ma.us/dep/brp/dws/files/hazmat.doc>
- ✓ **Inspection Program** - Coordinate efforts with local officials and the other water districts in the development and implementation of an Inspection Program that is usually conducted by the local Board of Health to prevent hazardous substances from entering water supplies. Inspections target facilities that generate, use, store, or disposal of hazardous/toxic



materials. Programs can also include floor drain inspections and underground storage tanks. Local inspection programs often provide educational material and technical assistance on Best Management Practices. Building Inspectors are often involved in local inspection programs.

- ✓ **Hazardous Materials** - Work with local businesses to encourage training on proper hazardous material use, disposal, and emergency response. Refer to the attached list of resources for more information on hazardous material BMPs.
- ✓ **Storage Tanks** - Support your local fire department in upgrading all above and below ground oil/hazardous material storage tanks in order to meet current construction standards. Funding for replacing underground storage tanks is available through the MA Department of Revenue. For more information, refer to http://www.dor.state.ma.us/ust/ust_home.htm
- ✓ **Register Hazardous Waste Generators** - Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil.
- ✓ **Monitor Land Uses** - Work with the Selectmen, Board of Health and Planning Board to monitor land uses within and proximal to the Zone II. Refer to the Wellhead Protection Plan guidance and model bylaws at <http://www.state.ma.us/dep/brp/dws/files/whplan.doc> for types of activities that should be prohibited and managed in the vicinity of public or private water supplies.
- ✓ **Lawn care and Landscaping** - Encourage local businesses to incorporate Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides. For more information, refer to http://www.massdfa.org/pesticides/publications/IPM_kit_for_bldg_mgrs.pdf
- ✓ **Office of Technical Assistance** - For additional help regarding environmental requirements and toxic use reduction approaches to compliance contact the Office of Technical Assistance (OTA) for Toxic Use Reduction. The OTA is a nonregulatory agency within the Commonwealth's Executive Office of Environmental Affairs. OTA provides free, confidential assistance on toxic use reduction opportunities. <http://www.state.ma.us/ota/>

3. Federal Superfund Site and Oil or Hazardous Material Contamination Site -The Zone II contains a United States Environmental Protection Agency (USEPA) Superfund Site that is associated with a DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 3-0000321, and a DEP Tier

What are "BMPs?"

Best Management Practices are structural (i.e. oil & grease trap catch basins), nonstructural (i.e. hazardous waste collection days) or managerial measures that are used to protect and improve surface water and groundwater quality.

Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 3-0015192 . Refer to the attached map and Appendix 3 for more information.

Federal Superfund Site and Oil or Hazardous Material Contamination Site Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known Superfund site and oil or hazardous material contamination site.

For more information refer to the attached map, Appendix C, and the Bureau of Waste Site Cleanup's website at <http://www.state.ma.us/dep/bwsc/sitelist.htm>

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix 2: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Agricultural				
Fertilizer Storage or Use	2	M	344, 355	Fertilizers: leaks, spills, improper handling, or over-application
Landscaping	1	M	344	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling or over application
Manure Storage or Spreading	3	H	344, 355	Manure (microbial contaminants): improper handling
Commercial				
Body Shops	2	H	344	Vehicle paints, solvents, and primer products: improper management
Gas Stations	2	H	344, 355	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	3	H	344	Automotive fluids, and solvents: spills, leaks, or improper handling
Cemeteries	1	M	355	Pesticides: improper handling or over-application of, leaks or spills, and historic embalming fluids
Golf Courses	1	M	355	Fertilizers, pesticides, petroleum products and other chemicals: over-application or improper handling, spills, or leaks
Laundromats	1	L	355	Wash water: improper management
Printer And Blueprint Shops	2	M	344, 355	Printing inks and chemicals: spills, leaks, or improper handling or storage
Research Laboratories	1	M	344	Laboratory chemicals and wastes: spills, leaks, or improper handling or storage
Sand And Gravel Mining/Washing	1	M	344	Heavy equipment, fuel storage, clandestine dumping: spills or leaks
Industrial				
Chemical Manufacture Or Storage	1	H	344	Chemicals and process wastes: spills, leaks, or improper handling or storage
Hazardous Materials Storage	1	H	344	Hazardous materials: spills, leaks, or improper handling or storage
Industry/Industrial Parks	2	H	344	Industrial chemicals and metals: spills, leaks, or improper handling or storage
Machine/Metalworking Shops	3	H	344	Solvents and metal tailings: spills, leaks, or improper handling
Residential				
Fuel Oil Storage (at residences)	Several	M	344, 355	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	344, 355	Pesticides: over-application or improper storage and disposal

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Residential				
Septic Systems/ Cesspools	Numerous	M	344, 355	Household hazardous waste: improper disposal, and microbial contaminants
Miscellaneous				
Aboveground Storage Tanks	3	M	344, 355	Materials stored in tanks: spills, leaks, or improper handling
Large Quantity Hazardous Waste Generators	2	H	344	Hazardous materials and waste: spills, leaks, or improper handling or storage
NPDES Locations	1	L	344	Hazardous material and wastes: improper disposal
Oil or Hazardous Material Sites	2	- - -	344	Oil or hazardous materials and waste: spills, leaks, or improper handling or storage
Pipeline (sewer)	2	M	344, 355	Oil or sewage: spills or leaks
Road And Maintenance Depots	1	M	344	Deicing materials, automotive fluids, fuel storage, and other chemicals: spills, leaks, or improper handling or storage
Schools, Colleges, and Universities	1	M	344	Fuel oil, laboratory, art, photographic, machine shop, cleaning and other chemicals; over- application or improper management of fertilizers and pesticides on athletic fields; parking areas; spills, leaks, or improper handling
Small Quantity Hazardous Waste Generators	2	M	344, 355	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Numerous	L	344, 355	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Superfund Sites	1	H	344	Spills, leaks, or improper handling or storage of oil or hazardous materials and waste
Transmission Line Rights-of-Way-Type: <u>electric</u>	2	L	344	Construction and corridor maintenance, over-application or improper handling of pesticides
Transportation Corridors	2	M	344, 355	Fuels and other hazardous materials: accidental leaks or spills, over-application or improper handling of pesticides
Underground Storage Tanks	10	H	344, 355	Petroleum products: spills, leaks, or improper handling
Utility Substation Transformers	1	L	355	Fuels and other hazardous materials: spills, leaks, or improper handling
Very Small Quantity Hazardous Waste Generator	5	L	344, 355	Hazardous materials and waste: spills, leaks, or improper handling or storage
Water Supply Protection Area % that is Sewered = Zone II ID# 344 - 1%; Zone II ID# 355 - 75%				
Notes:				
1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.				
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.				
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.				
THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.				

4. Comprehensive Wellhead Protection Planning - Protection planning prevents drinking water contamination by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are numerous resources available to help communities in developing a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ **Develop a land acquisition plan** - Land acquisition protects water supplies by limiting the land development potential. Acquisitions can be accomplished by municipal water systems through conservation restrictions, land banking, land purchases and land donations. Sample conservation restrictions are available at: <http://www.state.ma.us/dep/brp/dws/>. The Town of Groveland is fortunate that the Main Street Well #1 Zone II still has significant forest (refer to attached maps for percentage of forest). However, future development of this Zone II is a major concern. The Department recommends that the town acquire Zone II land closest to the Zone I or land that is subject to high-risk development (refer to Developing a local Wellhead Protection Plan).
- ✓ **Local Controls** - Coordinate efforts with local officials in Georgetown to compare existing controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://www.state.ma.us/dep/brp/dws/>.
- ✓ **Inspection Program** - Develop and implement an Inspection Program for facilities that generate, use, store, or dispose of hazardous/toxic materials. Local Board of Health and Building Inspectors working on inspections often include floor drain and underground storage tanks. Local inspection programs can provide valuable technical assistance on Best Management Practices.
- ✓ **Develop a Wellhead Protection Plan** – Establish a local team, and refer them to <http://www.state.ma.us/dep/brp/dws/> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - Increased groundwater monitoring and treatment
 - Water supply clean up and remediation
 - Replacing a water supply
 - Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Other land uses and activities that may be potential contaminant sources include gas stations, transmission line rights-of-way, wastewater treatment facilities, oil and hazardous materials sites, and schools. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential contaminant sources is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential contaminant sources are identified, specific recommendations like those below should be used to better protect the Groveland wells.

Section 3: Source Water Protection

Implementing source protection measures and Best Management Practices (BMPs) will reduce the Groveland Water Supply System’s susceptibility to contamination. Additional source protection recommendations are listed in Table 3 and the Key Issues above.

Groveland is commended for promoting the following source protection measures:

- Actively inspecting industrial businesses, and pursuing and monitoring the closure of floor drains
- Adopting, through a Zoning Bylaw, a Aquifer Protection District that meets current MA Wellhead Protection Regulations 310 CMR 22.21(2)
- Conducting an on-going educational program with high school students that includes students developing an athletic field project that implemented best management practices for wellhead protection

Appendix 1 includes specific recommendations for each of the following:

➤ **Partner with Local Businesses:**

Since many small businesses and industries use hazardous materials and produce hazardous waste products, it is essential to educate the business community about drinking water protection. Encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

➤ **Provide Outreach to the Community:**

Public education and community outreach ensure the long-term protection of drinking water supplies. Awareness often generates community cooperation and support. Residents and business owners are more likely to change their behavior if they know where the wellhead protection recharge area is located; what types of land uses and activities pose threats; and how their efforts can enhance protection.

➤ **Plan for the Future:**

One of the most effective means of protecting water supplies is planning, such as the adoption of local controls to protect watersheds and ground water. These controls may include health regulations, general ordinances, and zoning bylaws that prohibit potential sources of contamination from wellhead protection areas.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. These recommendations are only part of your ongoing local drinking water source protection.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Section 4: Additional Resources Available for Source Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The assessment and protection recommendations in this SWAP report are provided as a tool to spur community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

The Groveland Water Department should supplement this SWAP report with local information on potential sources of contamination and land uses. To aid in the protection of the wells, local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Funding Resources:

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing Water Supply Source Protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. For additional information, please refer to the program fact sheet from this year. Please note: each spring DEP posts a new Request for Response for the Grant program (RFR).

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm>.

Section 5: Appendices

1. Protection Recommendations
2. Regulated Facilities within the Water Supply Protection Area
3. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
4. Additional Documents on Source Protection in Groveland

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply -related activities the only activities within the Zone I?	NO	Continue monitoring non-water supply activities in Zone I.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town's "Groundwater Protection Overlay District" bylaw meets 310 CMR 22.21(2). Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	YES	
Planning		
Does the PWS have a Wellhead Protection Plan?	YES	Groveland has an Aquifer Protection Bylaw and Board of Health Floor Drain Regulation; Wetland Controls through the Conservation Commission, Planning Board and Zoning Board; and Groundwater Disposal, and Groundwater Recharge Areas regulations.
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	The water department conducts inspections in addition to those that are done by DEP's Bureau of Waste Prevention, and Underground Injection Control program.
Does the PWS provide wellhead protection education?	YES	Aim efforts at residential, commercial, and municipal uses within the Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN THE GROVELAND WATER SUPPLY PROTECTION AREA

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
130385	AGGREGATE INDUSTRIES NORTHEAST REGION	YEMMA RD	GROVELAND	RECYCLE	RECYCLE R OF HAZARDOUS WASTE
130385	AGGREGATE INDUSTRIES NORTHEAST REGION	YEMMA RD	GROVELAND	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
130384	AW CHESTERTON COMPANY	860 SALEM ST	GROVELAND	TURA REPORTER	LARGE QUANTITY TOXIC USER
130384	AW CHESTERTON CO	860 SALEM ST	GROVELAND	HANDLER	LARGE QUANTITY GENERATOR
130384	AW CHESTERTON CO	860 SALEM ST	GROVELAND	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
130384	AW CHESTERTON CO	860 SALEM ST	GROVELAND	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
137403	GETTY 30518	299 MAIN ST	GROVELAND	FUEL DISPENSER	FUEL DISPENSER
137403	GETTY PETROLEUM CORPORATION	299 MAIN ST	GROVELAND	HANDLER	VERY SMALL QUANTITY GENERATOR
37655	GREENWOOD AUTO BODY	863 SALEM ST	GROVELAND	HANDLER	VERY SMALL QUANTITY GENERATOR
333358	NEW ENGLAND ENVIRONMENTAL TECHNOLOGIES	310 MAIN STREET	GROVELAND	HANDLER	VERY SMALL QUANTITY GENERATOR
333358	NEW ENGLAND ENVIRONMENTAL TECHNOLOGIES	310 MAIN STREET	GROVELAND	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
311849	PHOENIX PRINTING	282 MAIN ST	GROVELAND	HANDLER	VERY SMALL QUANTITY GENERATOR
288129	UNION MACHINE COMPANY OF LYNN INC	925 SALEM ST	GROVELAND	HANDLER	SMALL QUANTITY GENERATOR
299471	XPRESS FUEL	990 SALEM ST (RTE 97 SOUTHBOUND)	GROVELAND	FUEL DISPENSER	FUEL DISPENSER
343634	TOWNLIN AUTO & TRUCK SERVICES	938 R SALEM STREET	GROVELAND	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

Underground Storage Tanks

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
GETTY STATION	299 MAIN STREET	GROVELAND	SERVICE STATION	8000	GASOLINE
GETTY STATION	299 MAIN STREET	GROVELAND	SERVICE STATION	8000	GASOLINE
GETTY STATION	299 MAIN STREET	GROVELAND	SERVICE STATION	8000	GASOLINE
TOWN OF GROVELAND POLICE & FIRE	183 MAIN STREET	GROVELAND	EMERGENCY SERVICES		GASOLINE
XPRESS FUEL	908 SALEM STREET	GROVELAND	GAS STATION	10000	Gasoline
XPRESS FUEL	908 SALEM STREET	GROVELAND	GAS STATION	8000	Gasoline
XPRESS FUEL	908 SALEM STREET	GROVELAND	GAS STATION	8000	DIESEL
XPRESS FUEL	908 SALEM STREET	GROVELAND	GAS STATION	6000	Gasoline

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Hamilton Department of Public Works

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Hamilton Department of Public Works
<i>PWS Address</i>	Town Hall/P.O. Box 429
<i>City/Town</i>	Hamilton
<i>PWS ID Number</i>	3119000
<i>Local Contact</i>	Steve Kenney - DPW Director
<i>Phone Number</i>	978-468-5580

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

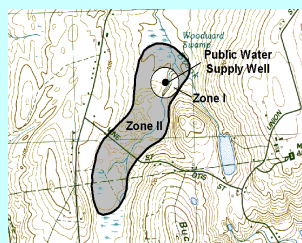
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

Zone II#: 370

Susceptibility: High

<i>Well Name</i>	<i>Source ID#</i>
School G.P. Well	3119000-02G

Zone II#: 131

Susceptibility: High

<i>Well Name</i>	<i>Source ID#</i>
Patton G.P. Well	3119000-03G
Caisson Well	3119000-04G
Idlewood GP Well #1 & Satellite	3119000-05G
Idlewood GP Well #2	3119000-06G

<i>Well Name</i>	<i>Source ID#</i>
Bridge Street Tubular & GP Wells	3119000-01G

The Town of Hamilton's Water Department (Hamilton) is supplied by five (5) wells that draw water from various locations throughout Hamilton. The five (5) wells are located in two separate Zone IIs (refer to attached Source Water Assessment Program maps for individual well locations). Each well has a Zone I radius of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The Caisson Wells, and Idlewood Wells 1 and 2 are treated at a centralized water treatment facility located on Pine Tree Drive. These wells have orthophosphate (Aqua-Mag) added for corrosion control, sodium hypochlorite added for disinfection, and sodium fluoride added to prevent tooth decay. A filtronic media is used for iron removal, with sodium sulfite used as a coagulant enhancer. The Patton Well and the School Street Well have orthophosphate (Aqua-Mag) added for corrosion control, hypochlorite added for disinfection, and sodium fluoride added to prevent tooth decay. The Bridge Street Tubular Wellfield and gravel packed wells are currently inactive, although Hamilton is exploring the possibility of redeveloping these wells for future use.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The land uses for both of Hamilton's Zone IIs consist primarily of a mixture of forest, residential, wetlands, crop and pasture, and open urban land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key issues include:

1. Inappropriate Activities in Zone I
2. Residential Land Use
3. Manure Storage or Spreading
4. Stormwater Catch Basins within Zone IIs
5. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for Hamilton is high, based on the presence of at least one high threat land use within the Zone II, as seen in Table 2.

1. Inappropriate Activities in Zone I – Many public water supplies were developed prior to the Department's regulations and contain non water supply activities such as homes, public roads, businesses, farms, or schools in the Zone I. Among the significant threats to water supplies are septic systems, pesticides and fertilizers, storm water runoff and underground storage tanks which often accompany these activities. Massachusetts wellhead protection regulations requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction.

Inappropriate Activities in Zone I - Recommendations

- ✓ **Ownership or Control – School Street Well:** Hamilton is currently investigating options for ownership or control of the land that comprises the 400 foot Zone I radius for the School Street Well. If outright ownership is not an immediate option, Hamilton should attempt to negotiate a Conservation Restriction for the purposes of providing and promoting exclusive and perpetual protection of water supply and water quality.
- Patton Well:** Based on existing local maps and an agreement with the owner of the Patton Farm, it is difficult to determine if the 400 foot Zone I radius for the Patton Well has adequate land use controls in place. Work with the landowner to determine if the land use agreement is adequate to meet DEP Zone I restrictions.
- ✓ **Agreement Options** - Until land is available, attempt to obtain a *Memorandum of Understanding* and *Right of First Refusal*.

Memorandum of Understanding (MOU) is an agreement between the landowner and public water supplier in which the landowner agrees not to engage in specific threatening activities. The MOU should be specific to the land use or activity. For instance, if the land is residential with a septic system the owner could agree not to place chemicals, petroleum products, or other hazardous or toxic substances, including septic system cleaners into the septic system, and that the system will be pumped at a specific frequency. Understanding how and activity threatens drinking water quality is an important component of developing and effective MOU. Right of First Refusal is a legal document that gives the water supplier first chance to purchase land when it becomes available. See *Right of First Refusal* in Appendices.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

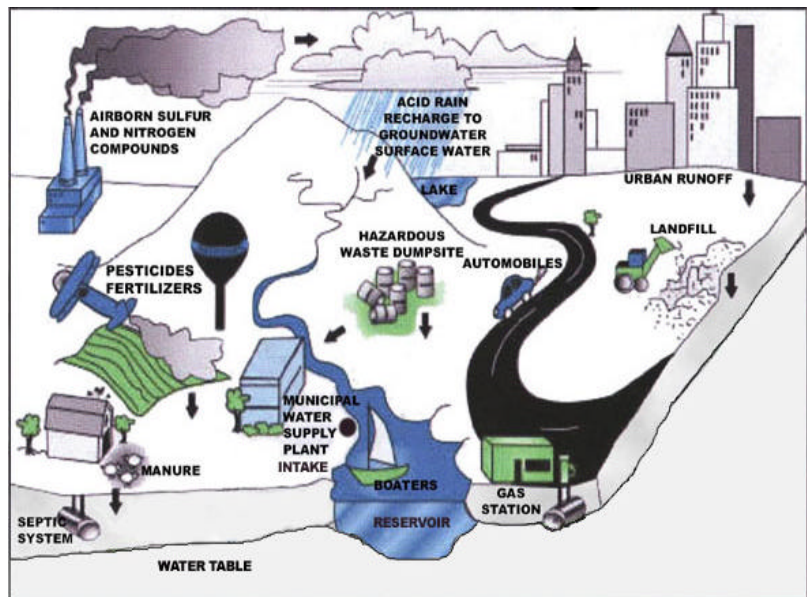


Figure 1: Sample watershed with examples of potential sources of contamination

- ✓ **Septic System Relocation** – Coordinate efforts with landowners in the School Street Zone I to determine the feasibility of relocating septic systems outside of the Zone I.

2. Residential Land Use - If managed improperly, household hazardous waste, septic systems, lawn care, and pet waste can all contribute to groundwater contamination. Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances.

If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Fertilizers and pesticides contain hazardous chemicals that can travel through the soil and contaminate ground water if over-applied. Pet waste may contain bacteria, parasites, or viruses that are a health risk. Water supplies may also be threatened from improper use or disposal of chemical products used in homes or businesses. Steps to educate residents and businesses on proper disposal of these materials is the best defense against pollution.



Residential Recommendations - Household Hazardous Waste:

- ✓ **Proper Disposal** - Educate residents on the problem of disposing of hazardous materials in landfills, septic systems, wastewater treatment plants, storm drains, and on the ground. Encourage residents to participate in the Town of Hamilton’s annual Household Hazardous Waste Collection Day. The Town of Hamilton accepts pesticides, fertilizers, acids, harsh cleaners, oil paints, alkaline, and paint cleaners for recycling during this annual collection.
- ✓ **Alternative Products** - Provide residents with information on options that are available to substitute less hazardous substances for many products used in the home.

Residential Recommendations - Septic systems:

- ✓ **System Care** - Educate residents on private septic systems about using cleaning compounds that are safe for the septic system, on proper disposal practices, i.e. only sanitary waste in the septic system. Information on septic systems can be found at Massachusetts Department of Environmental Protections website <http://www.state.ma.us/dep/brp/files/yoursyst.htm>.
- ✓ **Proper Disposal** - Residents should dispose of used oil, antifreeze, paints, and other household chemicals properly - not in septic systems.

Residential Recommendations - Lawn Care and Landscaping:

- ✓ **Environmentally Sound Lawn Care** - Provide educational materials to residents about the proper application of pesticides or fertilizers. Landscape with native grasses, native flowering plants and trees and shrubs. Once established native plants require less water and may not require fertilizer, herbicide or pesticide use. Encourage the use of native plants and landscaping by establishing a demonstration area at a town facility. Information on environmentally sound lawn care practices can be obtained from the Massachusetts Department of Food and Agriculture Pesticide Bureau’s website at <http://www.massdfa.org>.

What are "BMPs?"

Best Management Practices are structural (i.e. oil & grease trap catch basins), nonstructural (i.e. hazardous waste collection days) or managerial measures that are used to protect and improve surface water and groundwater quality.

Residential Recommendations - Heating Oil Tanks:

- ✓ **Aboveground Storage Tanks** - Provide educational materials to residents regarding the proper storage of liquid petroleum products in aboveground storage tanks. The Department requires all Wellhead protection zoning and non zoning controls to prohibit the siting of liquid petroleum products storage in Zone II unless such storage is aboveground, on an impervious surface and either in a container or in an aboveground tank within a building, or in an area that has a containment system designed and operated to hold either 10 percent of the total possible storage capacity of all containers, or 110% of the largest container storage capacity whichever is greater. Consult with the local fire department for any additional local code requirements regarding aboveground storage tanks. A fact sheet on basement or outside oil tank can be obtained from the Barnstable County Department of Health And Environment at <http://www.CapeCod.net/bcdhe/oil/oil.htm>.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix 2: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Agricultural				
Manure Storage or Spreading	Numerous	H	131, 370	Manure (microbial contaminants): improper handling
Commercial				
Gas Stations	1	H	131	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Residential				
Fuel Oil Storage (at residences)	Numerous	M	131, 370	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	131, 370	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Numerous	M	131, 370	Household hazardous waste: improper disposal, and microbial contaminants
Miscellaneous				
Aboveground Storage Tanks	15+	M	131, 370	Materials stored in tanks: spills, leaks, or improper handling
Schools, Colleges, and Universities	2	M	131, 370	Fuel oil, laboratory, art, photographic, machine shop, cleaning and other chemicals; over-application or improper management of fertilizers and pesticides on athletic fields; parking areas; spills, leaks, or improper handling
Stormwater Drains/ Retention Basins	Numerous	L	131, 370	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way-Type: natural gas	2	L	370	Construction and corridor maintenance, over-application or improper handling of pesticides
Underground Storage Tanks	7	H	131, 370	Petroleum products: spills, leaks, or improper handling
Wastewater Treatment Plant/Collection Facility/ Lagoon	1	M	370	Treatment chemicals or equipment maintenance materials: improper handling or storage; wastewater: improper management

Water Supply Protection Area % that is Sewered = 0%

Notes:

- When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
- For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
- For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

3. Manure Storage or Spreading - Animal waste from barnyards, manure pits and field application can pollute ground and surface water when not contained or applied properly. Manure leachate can flow overland to a watercourse and its components can move down through soil to enter groundwater and ultimately drinking water wells.

The nutrients in manure that boost plant growth can be a pollution hazard if the manure is improperly handled. By making Best Management Practices (BMPs) part of a conservation plan, animal owners can greatly reduce the chances of contamination. A manure system should prevent contamination of water in lakes, streams, springs and wells.

Manure Storage or Spreading – Recommendations

- ✓ **Best Management Practices** - Work with the Town to develop Best Management Practices that are the most effective, practical means of preventing or reducing pollution from manure storage and spreading. Best Management Practices include properly storing manure, composting, establishing vegetative buffers, keeping animals out of streams, selecting pasture sites carefully, and safely storing commonly used chemicals found in barns.
- ✓ **Education** - Develop educational outreach that provides horse owners with best management practices.
- ✓ **Livestock Guidelines** - Work with the Hamilton Board of Health in developing livestock guidelines. These guidelines could include such issues as manure storage and disposal, paddock and grass turnout areas, and vegetated buffer zones.

4. Stormwater Catch Basins within Zone IIs – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

Stormwater Catch Basin Recommendations:

- ✓ **Inspect, Maintain, and Clean** - Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Additionally, street and parking lot sweeping reduces the amount of potential contaminants in runoff. Note: Catch basin cleanings are classified as solid waste by DEP and must be handled and disposed in accordance with all regulations, policies, and guidance. In the absence of written approval from DEP, catch basin cleanings must be taken to a facility permitted by DEP to accept solid waste. For information on DEP’s Nonpoint Competitive Grants Program Upcoming Funding Opportunity refer to: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm#wpa>.
- ✓ **Best Management Practices** - Work with the Town to develop Best Management Practices that are the most effective, practical means of preventing or reducing pollution from nonpoint sources. Information is available at <http://www.epa.gov/OWOW/NPS/roads.html>.
- ✓ **Local Controls** - Encourage local officials to develop a local stormwater ordinance. For more information see <http://www.epa.gov/owow/nps/ordinance/stormwater.htm>.
- ✓ **Storm Drain Stenciling Program** - Work with local watershed groups to institute a Storm Drain Stenciling Program. For more information on how to develop a storm drain stenciling program go to <http://www.earthwater-stencils.com>
- ✓ **Stormwater Planning** - Encourage local officials to become familiar with and begin to implement a stormwater management program to meet DEP’s Phase II Storm Water Regulations. For additional information, refer to the Stormwater Management Information at <http://www.state.ma.us/dep/brp/ww/wwpubs.htm#storm>.

5. Comprehensive Wellhead Protection Planning - Protection planning prevents drinking water contamination by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are numerous resources available to help communities in developing a plan for protecting drinking water supply wells.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased groundwater monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Protection Planning Recommendations:

- ✓ **Develop a land acquisition plan** - Land acquisition protects water supplies by limiting the land development potential. Acquisitions can be accomplished by municipal water systems through conservation restrictions, land banking, land purchases and land donations. Sample conservation restrictions are available at: <http://www.state.ma.us/dep/brp/dws/>.
The Town of Hamilton is fortunate that its Zone IIs still have significant forest (refer to attached maps for percentage of forest). However, future development of Zone II is a major concern. The Department recommends that the town acquire Zone II land closest to the Zone I or land that is subject to high-risk development. For more information on land acquisition, refer to DEP's "Developing a Local Wellhead Protection Plan".
- ✓ **Local Controls** - Coordinate efforts with local officials in Wenham and Topsfield to compare existing controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://www.state.ma.us/dep/brp/dws/>.
- ✓ **Inspection Program** - Develop and implement an Inspection Program for facilities that generate, use, store, or dispose of hazardous/toxic materials. Local Board of Health and Building Inspectors working on inspections often include floor drain and underground storage tanks. Local inspection programs can provide valuable technical assistance on Best Management Practices.
- ✓ **Develop a Wellhead Protection Plan** – Establish a local team, and refer them to <http://www.state.ma.us/dep/brp/dws/> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan".

Other land uses and activities that may be potential contaminant sources include gas stations, transmission line rights-of-way, wastewater treatment facilities, oil and hazardous materials sites, and schools. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential contaminant sources is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential contaminant sources are identified, specific recommendations like those below should be used to better protect the Hamilton wells.

Section 3: Source Water Protection

Implementing source protection measures and Best Management Practices (BMPs) will reduce the Hamilton Water Supply System's susceptibility to contamination. Additional source protection recommendations are listed in Table 3 and the Key Issues above.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/ including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Hamilton is commended for promoting source protection measures:

- Taking steps to address ownership/control issues of the Zone I at the School Street Well and the Patton Well.
- Adopting, through a Zoning Bylaw, a Groundwater Protection Overlay District that meets current MA Wellhead Protection Regulations 310 CMR 22.21(2).

Appendix 1 includes specific recommendations for each of the following:

➤ **Partner with Local Businesses:**

Since many small businesses and industries use hazardous materials and produce hazardous waste products, it is essential to educate the business community about drinking water protection. Encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

➤ **Provide Outreach to the Community:**

Public education and community outreach ensure the long-term protection of drinking water supplies. Awareness often generates community cooperation and support. Residents and business owners are more likely to change their behavior if they know where the wellhead protection recharge area is located; what types of land uses and activities pose threats; and how their efforts can enhance protection.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES (Idlewood Wells, Caisson Well, and Bridge Street Wells)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (School Street Well and Patton Well)	Continue to investigate options for gaining ownership or control for these two sources.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply -related activities the only activities within the Zone I?	Referenced above	Continue monitoring non-water supply activities in Zone I.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town's "Groundwater Protection Overlay District" bylaw meets 310 CMR 22.21(2). Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	Unknown	Work with neighboring municipalities to include Zone IIs in their wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	YES	
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	YES	Committee is comprised of citizens who participate in zoning and planning issues.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Fire Department conducts inspections. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	NO	Aim efforts at residential, commercial, and municipal uses within the Zone II. Implement plan to make SWAP Report available to citizens within the Zone II of Hamilton's wells.

➤ **Plan for the Future:**

One of the most effective means of protecting water supplies is planning, such as the adoption of local controls to protect watersheds and ground water. These controls may include health regulations, general ordinances, and zoning bylaws that prohibit potential sources of contamination from wellhead protection areas.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. These recommendations are only part of your ongoing local drinking water source protection.

Section 4: Additional Resources Available for Source Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The assessment and protection recommendations in this SWAP report are provided as a tool to spur community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

The Hamilton Water Department should supplement this SWAP report with local information on potential sources of contamination and land uses. To aid in the protection of the wells, local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Funding Resources:

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing Water Supply Source Protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. For additional information, please refer to the program fact sheet from this year. Please note: each spring DEP posts a new Request for Response for the Grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm>.

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Section 5: Appendices

1. Protection Recommendations
2. Regulated Facilities within the Water Supply Protection Area
3. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
4. Additional Documents on Source Protection in Hamilton



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Haverhill Water Department

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Haverhill Water Department
<i>PWS Address</i>	131 Amesbury Road
<i>City/Town</i>	Haverhill Massachusetts
<i>PWS ID Number</i>	3128000
<i>Local Contact</i>	William Pauk—Superintendent
<i>Phone Number</i>	(978) 374-2382

Introduction

We are all concerned about the quality of the water we drink. Drinking water may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

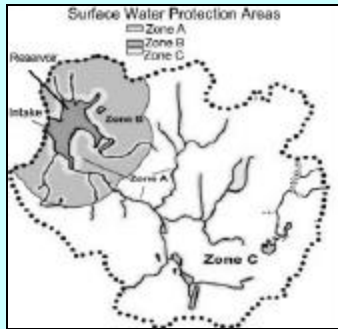
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Section 1: Description of the Water System

Source Name	Source ID	Susceptibility
Kenoza Lake	3128000-01S	High
Crystal Lake	3128000-03S	High
Millvale Reservoir	3128000-05S	High
Round Pond	3128000-07S	High

The Haverhill Water Department gets drinking water from four surface water sources. All four of the reservoirs are in the north of Haverhill near the New Hampshire border. Kenoza Lake and Round Pond both have watersheds completely within the town of Haverhill, the watershed for Crystal Lake extends across the border into Atkinson, New Hampshire, and the Millvale Reservoir watershed extends into the towns of Plaistow and Newton, New Hampshire.

Water from the reservoirs is filtered, treated for corrosion control, and fluoridated for dental health. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The protection areas for Haverhill are primarily a mixture of residential, protected open space and forest land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Glossary

Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Key Land Uses and Protection Issues include:

1. Zone A Land Uses
2. Residential Land Uses
3. Aquatic Wildlife
4. Transportation Corridors
5. Hazardous Materials Storage and Use
6. Presence of Oil or Hazardous Materials Contamination Sites
7. Agricultural Land Uses
8. Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Zone A Land Uses - The Zone A is the land area within 400 feet of a reservoir and 200 feet of its tributaries. The land uses and activities within the Zone As include: residences with on-site septic systems, above ground and underground storage tanks, roads, recreational activities, and wildlife. Public water systems are responsible for enforcing the prohibition of certain new or expanded land uses within the Zone A, as detailed in 310 CMR 22.20(b).

Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Actively monitor new or expanded land uses within the Zone A according to your watershed protocol submitted to DEP.

- ✓ Control stormwater and erosion within the Zone A.
- ✓ Control aquatic wildlife within the Zone A.
- ✓ Work with local emergency response teams to practice containment of spills within the Zone A.
- ✓ Conduct regular inspections of the Zone A for illegal dumping and spills.
- ✓ Install water supply protection area signs around the Zone A.

2. Residential Land Uses – The most common land use other than forested areas in the watersheds is residential. Some of the areas have public sewers, and others use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

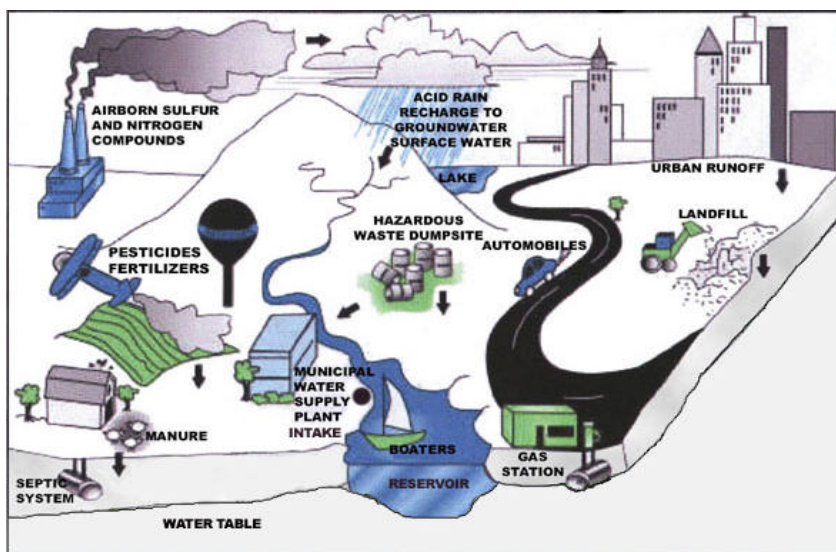
**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

3. Aquatic Wildlife—Birds, particularly gulls, are attracted to large open bodies of water. Birds may increase coliform levels through the release of fecal matter into the water and may carry other bacteria and viruses. Beaver and muskrat may introduce the pathogens Giardia and Cryptosporidium into water through fecal matter. Because of their constant contact with the water, these aquatic mammals represent a potential threat to drinking water reservoirs. Appendix A contains a DEP fact sheet titled *What You Need To Know About Microbial Contamination*.



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Figure 1: Sample watershed with examples of potential sources of contamination

Aquatic Wildlife Recommendations:

- ✓ Monitor wildlife populations in and around reservoirs.
- ✓ Where necessary, discourage and control aquatic wildlife. See <http://mass.gov/dep/brp/dws/protect.htm> for guidance and permits.

5. Transportation Corridors -

Transportation corridors, especially Route 495, and other paved and unpaved local roads cross through the water supply protection areas. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins.

Transportation Corridor Recommendations:

Work with the City of Haverhill to:

- ✓ Ensure that, wherever possible, drains discharge stormwater outside of the Zone I.
- ✓ Identify stormwater drainage systems along transportation corridors. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained. Review storm drainage maps with emergency response teams.
- ✓ Work with the Town and State to best manage stormwater in the Zone II. Best management practices include street sweeping, vegetative swales, and regular catch basin inspection, cleaning and maintenance.



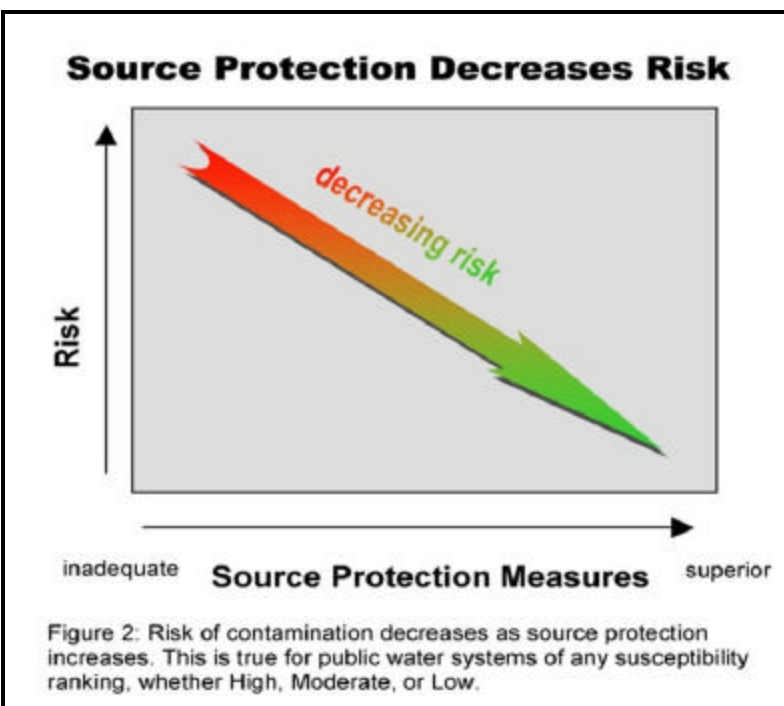
5. Hazardous Materials Storage and Use – A small percentage of the land area within the watersheds is commercial or industrial land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a storm drain, septic system, or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.



- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

6. Agricultural Activities – There is cropland and pasture land scattered throughout the watersheds. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If not contained or applied properly, animal waste from barnyards, manure pits and field application are potential sources of contamination to ground and surface water.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

Activities	Quantity	Source #	Threat*	Potential Source of Contamination
Agricultural				
Fertilizer Storage or Use	2	01S, 05S	M	Fertilizers: leaks, spills, improper handling, or over-application
Livestock Operations	3	01S, 03S, 05S	H	Manure (microbial contaminants): improper handling
Manure Storage or Spreading	1	01S	H	Manure (microbial contaminants): improper handling
Nurseries	1	05S	M	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling, or over-application
Pesticide Storage or Use	3	01S, 03S, 05S	H	Pesticides: leaks, spills, improper handling, or over-application
Commercial				
Auto Repair Shops	2	05S	M	Automotive fluids, vehicle paints and solvents: spills, leaks, or improper handling
Body Shops	2	05S	H	Improper management of vehicle paints, solvents, and primer products
Bus and Truck Terminals	2	05S	M	Fuels and maintenance chemicals: spills, leaks, or improper handling
Cemeteries	2	05S	M	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Golf Courses	1	03S	M	Fertilizers or pesticides: over-application or improper handling
Junk Yards and Salvage Yards	2	05S	H	Automotive chemicals, wastes, and batteries: spills, leaks, or improper handling
Nursing Homes	1	01S	L	Microbial contaminants: improper management
Repair Shops (Engine, Appliances, Etc.)	2	03S, 05S	M	Engine fluids, lubricants, and solvents: spills, leaks, or improper handling or storage
Sand and Gravel Mining/Washing	1	05S	M	Heavy equipment, fuel storage, clandestine dumping: spills or leaks

Table 2: Land Use in the Watershed (continued)

Activities	Quantity	Source #	Threat*	Potential Source of Contamination
Residential				
Fuel Oil Storage (at residences)	477+	All	M	Fuel oil: spills, leaks, or improper handling
Lawn Care / Gardening	Numerous	All	M	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	962+	All	M	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous				
Aquatic Wildlife	Few	All	H	Microbial contaminants
Combined Sewer Overflows	1	01S	H	Microbial and non-microbial contaminants including industrial wastewater; improper disposal of hazardous wastes
Composting Facilities	1	05S	M	Organic material, animal waste, and runoff: storage and improper handling
Fishing/Boating	Some	03S, 05S, 07S	M	Fuel and other chemical spills, microbial contaminants
Land Application of Sewage Sludge	1	03S	M	Sludge and runoff (metals): improper management
Schools, Colleges, and Universities	3	01S, 07S	M	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Snow Dump	1	01S	M	Melt water containing de-icing and other chemicals from roads and parking lots: improper handling
Stormwater Drains/ Retention Basins	Several	03S	H	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	1	05S	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	7	01S, 03S, 07S	M	Stored materials: spills, leaks, or improper handling
Notes:				
<ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. 				
<p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

Agricultural Activities Recommendation:

- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service farm plan to protect water supplies.

7. Presence of Oil or Hazardous Material Contamination Sites – The watersheds contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0019681, 3-0002712. Refer to the attached map and Appendix C for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

8. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the City does not have water supply protection controls that meet DEP’s Surface Water Protection regulations 310 CMR 22.20 (b) and (c). A Surface Water Supply Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply reservoirs.

Protection Planning Recommendations:

- ✓ Develop a Surface Water Supply Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Surface Water Supply Protection Plan”.
- ✓ If local controls do not meet the current regulations, adopt controls that meet 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.
- ✓ Work with Atkinson, Plaistow, and Newton, New Hampshire to encourage protection of watershed lands within those towns.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Other land uses and activities within the watersheds that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Applying for a source protection grant for the Millvale Reservoir to develop an emergency response plan.
- Patrolling watershed jointly with conservation officers on a regular basis.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone A?	NO	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone A posted with “Public Drinking Water Supply” Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone A?	NO	Continue monitoring non-water supply activities in Zone As.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C?	YES	Refer to www.state.ma.us/dep/brp/dws/ for model bylaws, health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	In process	City of Haverhill, through a source protection grant, is in the process of developing a multi-town agreement for watershed protection
Planning		
Does the PWS have a local surface water supply protection plan?	YES	Update and implement the surface water supply protection plan. Follow “Developing a Local Surface Water Supply Protection Plan” available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal “Emergency Response Plan” to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	NO	Establish committee; include representatives from citizens’ groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	For more guidance see “Hazardous Materials Management: A Community’s Guide” at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	YES	Lake alliance, school involvement, water treatment plant open house, consumer confidence report. Aim additional efforts at commercial, industrial and municipal uses within the watershed.

- Coordinating efforts with conservation agent and city boards to review new development and subdivision proposals and septic system plans.
- Coordinating efforts with conservation agent to review plans for compliance with State stormwater management policies.
- Conducting an annual watershed inspection.
- Acquiring land within the watershed through land swaps.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect all Zone As regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with local businesses on the implementation of best management practices for protecting water supplies.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your watershed and to cooperate on responding to spills or accidents.
- ✓ Monitor wildlife populations in and around reservoirs.
- ✓ Work with farmers in your protection areas to make them aware of your water supply.
- ✓ Continue to update and implement your Surface Water Supply Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department’s Source Protection Grant Program provides funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response (RFR) for the grant program.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection’s Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watershed. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

For More Information

Contact Anita Wolovick in DEP’s Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier and town boards.

Section 4: Appendices

- A. Regulated Facilities within the Water Supply Protection Area
- B. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- C. Additional Documents on Source Protection

APPENDIX A: DEP PERMITTED FACILITIES WITHIN HAVERHILL WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132330	110 MOBIL WICKSON CORP LTD INC	401 AMESBURY ROAD	HAVERHILL	FUEL DISPENSER	FUEL DISPENSER STAGEII
351772	GETTY	402 AMESBURY ROAD	HAVERHILL	FUEL DISPENSER	FUEL DISPENSER STAGEII
327063	LAKESIDE MOTORS	828 AMESBURY ROAD	HAVERHILL	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
35526	MAHONEY JAMES A & SONS INC	35 LIBERTY STREET	HAVERHILL	HANDLER	VERY SMALL QUANTITY GENERATOR
319056	MERRICKS TRANSMISSION	769 AMESBURY ROAD	HAVERHILL	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
135587	NORTHERN ESSEX COMMUNITY COLLEGE	100 ELLIOT STREET	HAVERHILL	HANDLER	VERY SMALL QUANTITY GENERATOR
135587	NORTHERN ESSEX COMMUNITY COLLEGE	100 ELLIOT STREET	HAVERHILL	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
30480	MCGREGOR SMITH MOTOR CO INC	123 W MAIN STREET	MERRIMAC	HANDLER	VERY SMALL QUANTITY GENERATOR

UNDERGROUND STORAGE TANKS WITHIN HAVERHILL WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
GETTY	402 AMESBURY RD	HAVERHILL	Gas Station	6000	GASOLINE
GETTY	402 AMESBURY RD	HAVERHILL	GAS STATION	6000	GASOLINE
GETTY	402 AMESBURY RD	HAVERHILL	GAS STATION	6000	GASOLINE
WICKSON CORP	401 AMESBURY RD	HAVERHILL	GAS STATION	12000	Gasoline
WICKSON CORP	401 AMESBURY RD	HAVERHILL	GAS STATION	10000	Gasoline
WICKSON CORP	401 AMESBURY RD	HAVERHILL	GAS STATION	8000	Gasoline
WICKSON CORP	401 AMESBURY RD	HAVERHILL	GAS STATION	6000	Diesel

For more information on underground storage tanks, visit the Massachusetts department of fire services web site: <http://www.state.ma.us/dfs/ust/usthome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Haverhill Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0019681	769 Amesbury Road	Haverhill	Oil and Hazardous Material
3-0002712	Brandy Brow Road	Haverhill	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Hingham/Hull Water Supply

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Aquarion Water Company of Massachusetts
<i>PWS Address</i>	P.O. Box 336
<i>City/Town</i>	Accord, Massachusetts 02061-0336
<i>PWS ID Number</i>	3131000
<i>Local Contact</i>	Eileen Commene
<i>Phone Number</i>	(781) 740-6633

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

Groundwater Sources

Zone II #: 394

Source Name	Source ID#	Susceptibility
Free St. Well #1	3131000-01G	High
Free St. Well #2	3131000-02G	High
Scotland St. Well	3206000-03G	High
Downing St. Well	3206000-04G	High
Free St. Well #3	3206000-05G	High
Prospect Well	3206000-06G	High

Surface Water Sources

Source Name	Source ID#	Susceptibility
Accord Pond	3206000-01S	High
Accord Brook	3206000-02S	High
Fulling Mill Collection Basins	3206000-03S	High

The wells for the Hingham/Hull water supply are located within a single water supply protection area, with a portion extending into the Town of Norwell. Each well has a Zone I radius of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barrier (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The reservoirs for Hingham and Hull are located within three separate water supply protection areas, with a portion of the Accord Pond water supply protection area extending into the towns of Norwell and Holbrook, and a portion of the Accord Brook water supply protection area extending into the town of Norwell.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

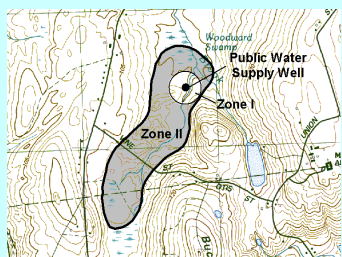
The Zone II and Zone Cs for Hingham and Hull's sources are primarily a mixture of forest, residential, and wetlands, and open land, with a small portion consisting of commercial and waste disposal land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Activities in Zone A
3. Hazardous Materials Storage and Use
4. Transportation Corridor
5. Residential Land Uses
6. Oil or Hazardous Material Contamination Sites
7. Comprehensive Wellhead Protection Planning

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



The ranking of susceptibility to contamination for the Zone II of the Free St. Well #1, Free St. Well #2, Scotland St. Well, Downing St. Well, Free St. Well #3, and Prospect Well is high, based on the presence of at least one high threat land use within the water supply protection area, as seen in Table 2; the ranking of susceptibility to contamination for Accord Pond, Accord Brook, and Fulling Mill Collection Basin Zone Cs is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone I – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The following non-water supply activities occur in the Zone Is of the system wells:

Free Street Well #1 - There are several homes served by on-site septic systems in the Zone I.

Free Street Well #2 - There is one home served by an on-site septic system in the Zone I.

Free Street Well #3 - There are four homes served by on-site septic systems, and local roads in the Zone I.

Scotland Street Well - There is one home served by an on-site septic system and local roads in the Zone I.

Downing Street Well - There are recreational activities occurring in the Zone I.

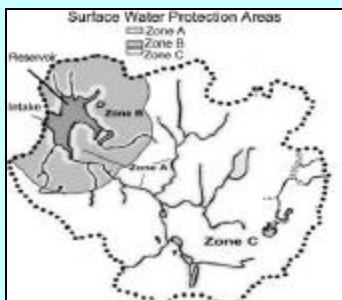
Prospect Well - There are four homes served by an on-site septic system, and local roads in the Zone I.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ Agreement Options - Until land is available, attempt to obtain a *Memorandum of Understanding* and *Right of First Refusal*.

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Memorandum of Understanding (MOU) is an agreement between the landowner and public water supplier in which the landowner agrees not to engage in specific threatening activities. The MOU should be specific to the land use or activity. For instance, if the land is residential with a septic system the owner could agree not to place chemicals, petroleum products, or other hazardous or toxic substances, including septic system cleaners into the septic system, and that the system will be pumped at a specific frequency. The application of lawn care chemicals could also be restricted. Understanding how an activity threatens drinking water quality is an important component of developing an effective MOU.

Right of First Refusal is a legal document that gives the water supplier first chance to purchase land when it becomes available. See *Right of First Refusal* in Appendices.

2. Activities in Zone A - Existing and future land use activities which may have an impact on surface water sources include: public and private recreational activities; untreated stormwater runoff; domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and unpermitted and unauthorized activities. Wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. The following activities occur in the Zone A of the system's reservoirs:

Accord Pond - There are numerous homes throughout the Zone A of the reservoir and its tributary, some of which are served by on-site septic systems;

local roads run throughout the Zone A of the reservoir and its tributaries, with a portion of Route 3 crossing a small section of a tributary; numerous commercial activities occur throughout the reservoir's Zone A and its tributary, some of which have underground storage tanks.

Accord Brook - There are numerous homes throughout the Zone A, some of which are served by on-site septic systems; local roads cross Accord Brook in several locations, with Route 53 crossing near the intake of Accord Pond.

Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

3. Hazardous Materials Storage and Use – Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

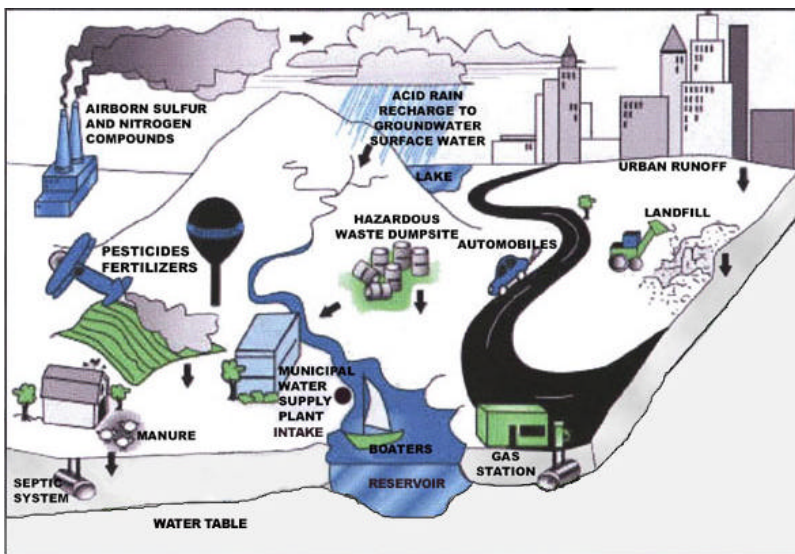
Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP's for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floordrain requirements. See brochure "Industrial Floor Drains" for more information.

4. Transportation Corridors - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins.

Transportation Corridor Recommendations:

- ✓ Identify stormwater drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge stormwater outside of the Zone II and Zone Cs.



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Figure 1: Sample watershed with examples of potential sources of contamination

- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Work with Town and State emergency response teams to ensure that any spills within the Zone II, Zone A and Zone C can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with city officials to investigate mapping options such as those in the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II Number	Zone C Source ID	Potential Contaminant Sources*
Commercial					
Gas Stations	2	H	394		Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	12	H	394	01S, 03S	Spills, leaks, or improper handling of automotive fluids, and solvents
Bus and Truck Terminals	2	H	394	03S	Spills, leaks, or improper handling of fuels and maintenance chemicals
Cemeteries	3	M	394	03S	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Dry Cleaners	3	H	394	01S, 03S	Spills, leaks, or improper handling of solvents and wastes
Medical Facilities	1	M	394		Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes
Paint Shops	2	H	394	03S	Spills, leaks, or improper handling or storage of paints, solvents, other chemicals
Repair Shops (Engine, Appliances, Etc.)	3	H	394	03S	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Residential					
Fuel Oil Storage (at residences)	Numerous	M	394	01S, 02S, 03S	Spills, leaks, or improper handling of fuel oil
Lawn Care/ Gardening	Numerous	M	394	01S, 02S, 03S	Over-application or improper storage and disposal of pesticides
Septic Systems/ Cesspools	Numerous	M	394	01S, 02S, 03S	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous					
Large Quantity Hazardous Waste Generators	1	H	394	02S	Spills, leaks, or improper handling or storage of hazardous materials and waste

Land Uses	Quantity	Threat	Zone II Number	Zone C Source ID	Potential Contaminant Sources*
Oil or Hazardous Material Sites	2	--	394	02S	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	5	M	394	03S	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small quantity hazardous waste generators	5	M	394	01S, 02S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Numerous/ several	L	394	01S, 02S, 03S	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	6	M	394	01S, 03S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	26	H	394	02S	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generator	8	L	394	01S, 02S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Wastewater Treatment Plant/ Collection Facility/ Lagoon	7	M	394	01S, 03S	Improper handling or storage of treatment chemicals or equipment maintenance materials; improper management of wastewater
Notes:					
<ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>					

5. Residential Land Uses – Approximately 35% of the combined Zone II and Zone Cs consist of residential areas. A portion of the Zone II for the wellfield is served by municipal sewerage, with the remaining homes having on-site septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

6. Presence of Oil or Hazardous Material Contamination Sites – The Zone II and Zone Cs contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 4-0000134, and 4-0015314. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

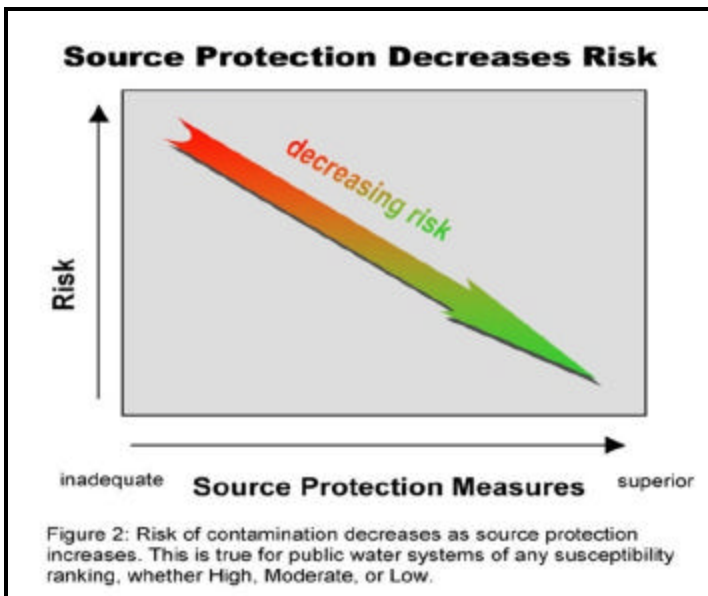
7. Protection Planning – Currently, the Town of Hingham does not have water supply protection controls. Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir. A Water Resource Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Top 5 Reasons to Develop a Local Wellhead and Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Protection Planning Recommendations:

- ✓ Develop a Wellhead and Surface Water Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan” and “Developing A Local Surface Water Supply Protection Plan”.
- ✓ Coordinate efforts with local officials to compare local wellhead and surface water protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2) and Surface Water Supply Protection Regulations 310 CMR 22.20B and 310 CMR 22.20C. If there are no local controls or they do not meet the current regulations,



adopt controls that meet 310 CMR 22.21(2), 310 CMR 22.20B and 310 CMR 22.20C. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).

Other land uses and activities within the Zone I and Zone Cs that are potential sources of contamination are included in Table 2. Refer to Appendix A for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination.

Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system's Zone II and Zone Cs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Having an Emergency Response Plan that deals with spills or other emergencies
- Working with Conservation Commission, Board of Health, Selectmen, and other local officials on source protection issues

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I and Zone A regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and Zone C and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Develop and implement a Wellhead and Surface Water Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A. DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and/or Zone A?	NO	To the extent possible, remove prohibited activities in Zone A to comply with DEP’s Zone I and Zone A requirements. Investigate options for gaining ownership or control of the Zone A.
Are the Zone I and Zone A posted with “Public Drinking Water Supply” Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone I and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I and Zone A?	NO	Monitor prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)?	UNKNOWN	Work with the Planning Board and the Selectmen to develop bylaws that meet land use controls required by 310 CMR 22.21(2) and 310 CMR 22.20B & C. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	UNKNOWN	Request that municipal officials in Rockland and Norwell develop land use restrictions that meet 310 CMR 22.21(2) and 310 CMR 22.20C, and to incorporate Hingham’s source protection areas.
Planning		
Does the PWS have a local surface water and wellhead protection plan?	NO	Develop a wellhead and surface water supply protection plan to include all sources. Follow “Developing a Local Wellhead Protection Plan” and “Developing a Local Surface Water Supply Protection Plan” available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal “Emergency Response Plan” to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed and wellhead protection committee?	NO	A committee exists for the Weir River Watershed. To have a well rounded committee, include representatives from local government, citizens’ groups, neighboring communities, and the business community, and expand interests to all sources.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Floor drain inspection was conducted in conjunction with DEP. For more guidance see “Hazardous Materials Management: A Community’s Guide” at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	SOME	Currently, the outreach is through the annual Consumer Confidence Report, and through the water department website. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II and Zone C.

Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

APPENDIX A: DEP PERMITTED FACILITIES WITHIN HINGHAM/HULL WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
136527	CUMBERLAND GULF #200102	19 WHITING STREET	HINGHAM	FUEL DISPENSER	FUEL DISPENSER
37161	FIRESTONE STORE	22 WHITING STREET	HINGHAM	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
312084	FRIDAY GRAPHICS	49 WHITING STREET	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR
209230	GETTY 30375	4 WHITING ROAD	HINGHAM	FUEL DISPENSER	FUEL DISPENSER
32666	HINGHAM MUNICIPAL LIGHT	308 CUSHING STREET	HINGHAM	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
323110	7 ELEVEN 32493	95 WASHINGTON STREET	NORWELL	HANDLER	VERY SMALL QUANTITY GENERATOR
323110	7 ELEVEN 32493	95 WASHINGTON STREET	NORWELL	FUEL DISPENSER	FUEL DISPENSER
364940	ALLEGRA PRINT & IMAGING	77 ACCORD PARK DRIVE	NORWELL	HANDLER	VERY SMALL QUANTITY GENERATOR
35008	AUTOMOTIVE HARD PARTS	9 GROVE STREET	NORWELL	HANDLER	VERY SMALL QUANTITY GENERATOR
33605	FABRIC CARE HOUSE	62 POND STREET	NORWELL	HANDLER	SMALL QUANTITY GENERATOR
134271	JIFFY LUBE	49 WASHINGTON STREET	NORWELL	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
134271	JIFFY LUBE	49 WASHINGTON STREET	NORWELL	HANDLER	VERY SMALL QUANTITY GENERATOR
178008	MOBIL OIL CORP SS QLW	89 WASHINGTON & GROVE STREETS	NORWELL	HANDLER	VERY SMALL QUANTITY GENERATOR
178008	MOBIL OIL CORP SS QLW	89 WASHINGTON & GROVE STREETS	NORWELL	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
357758	NORWELL MOBIL	89 WASHINGTON STREET	NORWELL	FUEL DISPENSER	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
359392	PLANET SUBARU	22 POND STREET	NORWELL	HANDLER	LARGE QUANTITY GENERATOR
31954	QUEEN ANNES SHELL	10 WASHINGTON STREET	NORWELL	HANDLER	VERY SMALL QUANTITY GENERATOR
31954	QUEEN ANNES SHELL	10 WASHINGTON STREET	NORWELL	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
29670	RIETZL CORP	59 POND STREET	NORWELL	APPR	INDUSTRIAL WASTE WATER HOLDING TANK
36464	SEARS ROEBUCK & CO	ACCORD PARK DRIVE	NORWELL	HANDLER	VERY SMALL QUANTITY GENERATOR
325669	SHELL 137821	10 WASHINGTON STREET	NORWELL	FUEL DISPENSER	FUEL DISPENSER
293551	SOUTH SHORE IMPORTED CARS INC	75 POND STREET	NORWELL	APPR	INDUSTRIAL WASTE WATER HOLDING TANK
34745	SULLIVAN TIRE	QUEEN ANNES CORNER	NORWELL	HANDLER	VERY SMALL QUANTITY GENERATOR
38141	SUN REFINING & MARKETING CO	117 POND STREET	NORWELL	HANDLER	VERY SMALL QUANTITY GENERATOR
38141	SUNOCO #0012-3653	117 POND STREET	NORWELL	FUEL DISPENSER	FUEL DISPENSER

UNDERGROUND STORAGE TANKS WITHIN HINGHAM/HULL WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
CUMBERLAND GULF	19 WHITING STREET	HINGHAM	GAS STATION	10000	GASOLINE
CUMBERLAND GULF	19 WHITING STREET	HINGHAM	GAS STATION	10000	GASOLINE
CUMBERLAND GULF	19 WHITING STREET	HINGHAM	GAS STATION	10000	GASOLINE
CHRISTY'S	95 WASHINGTON STREET	NORWELL	GAS STATION	6000	GASOLINE
CHRISTY'S	95 WASHINGTON STREET	NORWELL	GAS STATION	6000	GASOLINE
CHRISTY'S	95 WASHINGTON STREET	NORWELL	GAS STATION	6000	GASOLINE
GETTY STATION	4 WHITING STREET/ POND STREET	NORWELL	GAS STATION	10000	GASOLINE
GETTY STATION	4 WHITING STREET/ POND STREET	NORWELL	GAS STATION	8000	GASOLINE
GETTY STATION	4 WHITING STREET/ POND STREET	NORWELL	GAS STATION	6000	GASOLINE
GETTY STATION	4 WHITING STREET/ POND STREET	NORWELL	GAS STATION	510	WASTE OIL
GOODYEAR ASSOCIATION	POND STREET & WASHINGTON STREET	NORWELL	AUTO REPAIR	500	WASTE OIL
MOBIL	85 WASHINGTON STREET	NORWELL	GAS STATION	10000	GASOLINE
MOBIL	85 WASHINGTON STREET	NORWELL	GAS STATION	10000	GASOLINE
MOBIL	85 WASHINGTON STREET	NORWELL	GAS STATION	10000	GASOLINE
MOBIL	85 WASHINGTON STREET	NORWELL	GAS STATION	10000	GASOLINE
MOBIL	85 WASHINGTON STREET	NORWELL	GAS STATION	1000	WASTE OIL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
SHELL SERVICE STATION	10 WASHINGTON STREET	NORWELL	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION	10 WASHINGTON STREET	NORWELL	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION	10 WASHINGTON STREET	NORWELL	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION	10 WASHINGTON STREET	NORWELL	GAS STATION	500	FUEL OIL
SUNOCO	117 POND STREET	NORWELL	GAS STATION	8000	GASOLINE
SUNOCO	117 POND STREET	NORWELL	GAS STATION	8000	GASOLINE
SUNOCO	117 POND STREET	NORWELL	GAS STATION	8000	GASOLINE
SUNOCO	117 POND STREET	NORWELL	GAS STATION	1000	WASTE OIL
SUNOCO	117 POND STREET	NORWELL	GAS STATION	550	FUEL OIL
SUNOCO	117 POND STREET	NORWELL	GAS STATION	550	WASTE OIL

For more information on underground storage tanks, visit the Massachusetts department of fire services web site: <http://www.state.ma.us/dfs/ust/usthome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Hingham/Hull’s Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
4-0000134	Route 228 & 53	Norwell	Oil
4-0015314	86 High Street	Norwell	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Randolph/Holbrook Joint Water Board

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Randolph-Holbrook Joint Water Board
<i>PWS Address</i>	50 North Franklin Street
<i>City/Town</i>	Holbrook, Massachusetts
<i>PWS ID Number</i>	3244001
<i>Local Contact</i>	Thomas Cummings
<i>Phone Number</i>	(781) 767-1800

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures.

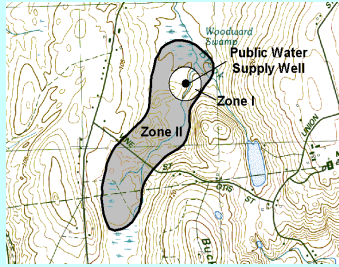
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

<i>IWPA</i>		<i>Susceptibility: High</i>	
<i>Well Names</i>	<i>Source IDs</i>		
South Street Well #3	3244000-01G		
South Street Well #2	3244000-02G		
South Street Well #1	3244000-03G		
Donna Road Tubular Wells	3244000-04G		
<i>Zone II #: 222</i>		<i>Susceptibility: High</i>	
<i>Well Names</i>	<i>Source IDs</i>		
Donna Road Well	3244000-0AG		

The Randolph-Holbrook Joint Water Board (Randolph-Holbrook) maintains and operates five public water supply sources. Randolph/Holbrook's sources are located within the Weymouth & Weir River basin. The wellhead protection area for the Donna Road Well (0AG), which is a proposed well, is located entirely within the town of Holbrook. This well has a Zone I radius of 400 feet.

South Street Well #3 (01G), South Street Well #2 (02G), and South Street Well #1 (03G), all of which are inactive sources, have Interim Wellhead Protection Areas (IWPAs) that are located in Holbrook and Randolph. The Donna Road Tubular Wells (04G), which is also an inactive source, has an IWPA that is located entirely in Holbrook. Tubular wells have a Zone I radius of 250 feet around each well; the Zone I radius for the other wells is 400 feet. All of the wells are located in aquifers with a high vulnerability to contamination due to the absence of a hydrogeologic barrier (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the IWPA.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The IWPAs and Zone II for Randolph-Holbrook are primarily a mixture of forest and residential land uses, with portions consisting of mining, commercial, and industrial activities (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous Materials Storage and Use
3. Residential Land Uses
4. Federal Superfund Site and Oil or Hazardous Material Contamination Sites
5. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the all of Randolph-Holbrook's wells is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone Is – Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as public roads.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.



2. Hazardous Materials Storage and Use – A small percent of the land area within the Zone II and IWPA contains commercial, industrial, and mining land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in USTs/ASTs. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure "Industrial Floor Drains" for more information.

3. Residential Land Uses – Residential areas are common throughout the IWPA and Zone IIs. Some of the areas have public sewers, and some use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

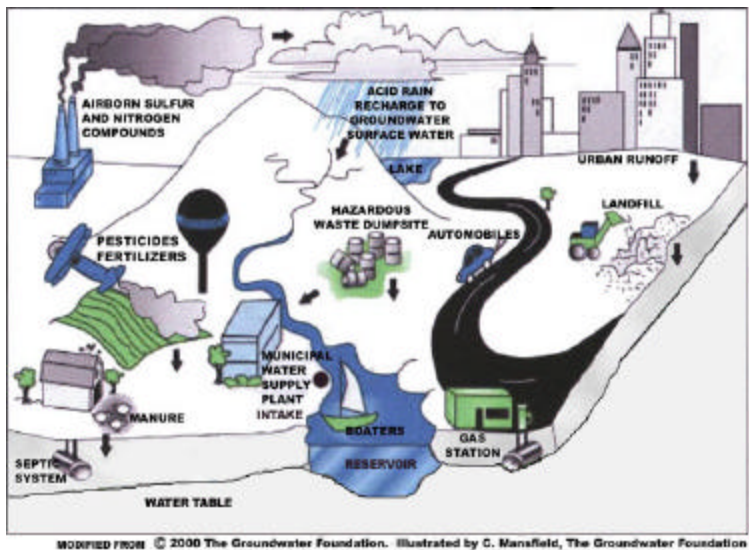


Figure 1: Sample watershed with examples of potential sources of contamination.

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

**When you wash your car in the driveway,
Remember
you're not *just* washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb, then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

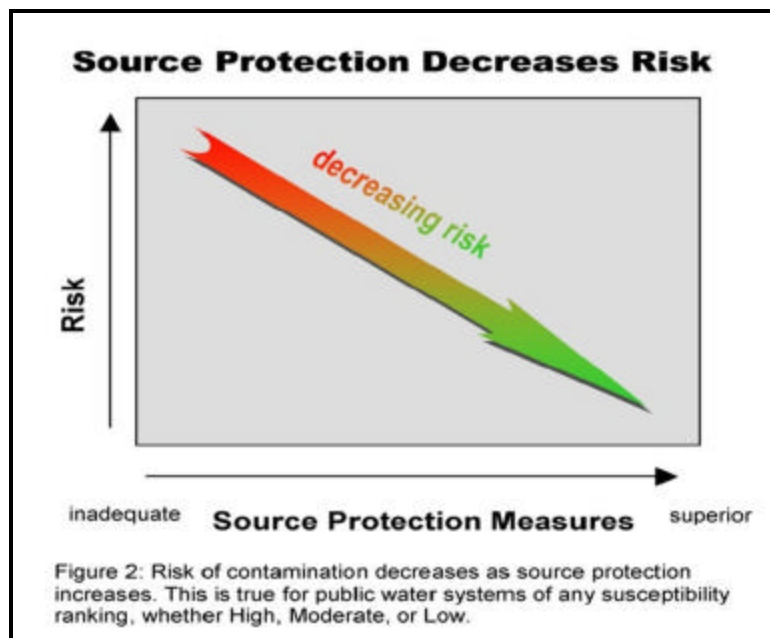
4. Federal Superfund Site and Oil or Hazardous Material Contamination Sites -

The IWPA for the South Street Wells contains a United States Environmental Protection Agency (USEPA) Superfund Site that is associated with a DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 3-0000333. Refer to the attached map and Appendix 3 for more information.

The Superfund Site is the contributor to the historic contamination at the South Street Wells.

Federal Superfund Site and Oil or Hazardous Material Contamination Sites Recommendation:

(Continued on page 6)



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (IWPA and Zones II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II #/ Source ID #	Potential Contaminant Sources*
Agricultural				
Nurseries	1	M	222	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Commercial				
Body Shops	1	H	222	Improper management of vehicle paints, solvents, and primer products
Gas Stations	2	H	222	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	1	H	222	Automotive fluids and solvents: spills, leaks, or improper handling
Bus and Truck Terminals	3	H	IWPA	Spills, leaks, or improper handling of fuels and maintenance chemicals
Sand and Gravel Mining/ Washing	1	M	04G	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial				
Asphalt, Coal Tar, and Concrete Plants	1	M	222	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Electroplaters	1	H	222	Spills, leaks, or improper handling or storage of solvents and other chemicals
Hazardous Materials Storage	1	H	01G, 02G, 03G	Spills, leaks, or improper handling or storage of hazardous materials
Metal Plating	1	H	01G, 02G, 03G	Spills, leaks, or improper handling or storage of solvents, other chemicals, and process wastes
Residential				
Fuel Oil Storage (at residences)	100+	M	All	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	100+	M	All	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	100+	M	All	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous				
Aboveground Storage Tanks	3	M	All	Spills, leaks, or improper handling of materials stored in tanks

Land Uses	Quantity	Threat	Zone II #/ Source ID #	Potential Contaminant Sources*
Miscellaneous				
Large Quantity Hazardous Waste Generators	1	H	01G, 02G, 03G	Spills, leaks, or improper handling or storage of hazardous materials and waste
Oil or Hazardous Material Sites	1	--	01G, 02G, 03G	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Small Quantity Hazardous Waste Generators	2	M	01G, 02G, 03G, 04G	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	100+	L	All	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Superfund Sites	1	H	01G, 02G, 03G	Spills, leaks, or improper handling or storage of oil or hazardous materials and waste
Underground Storage Tanks	1	H	All	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	2	L	222, 01G, 02G, 03G	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/Recycling Station	1	M	222	Improper management, seepage, and runoff of water contacting waste materials

Table 2 Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

5. Protection Planning – Currently, the Towns of Holbrook and Randolph do not have a groundwater protection bylaw that meets DEP’s Groundwater Protection regulations 310 CMR 22.21. Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Other land uses and activities within the IWPA and Zone II are included in Table 2. Refer to Table 2 and Appendix 2 for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, Randolph-Holbrook's IWPA's and Zone II contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the IWPA's and Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

- 1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
- 2. MA DEP SWAP Strategy
- 3. Land Use Pollution Potential Matrix
- 4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES (Donna Road Well Site)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (South Street Wells, Donna Road Tubular Wells)	To the extent possible, remove prohibited activities in Zone I to comply with DEP's Zone A requirements. Investigate options for gaining ownership or control of the Zone I.
Are the Zone Is posted with "Public Drinking Water Supply" Signs?	NO	Economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone Is regularly inspected?	NO	Wells are inactive and no longer inspected on a daily basis
Are water supply-related activities the only activities within the Zone I?	YES (Donna Road Well Site)	Monitor for any new non-water supply activities in Zone I, and investigate options for removing these activities.
	NO (South Street Well, Donna Road Tubular Wells)	Monitor prohibited activities in Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO	Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	N/A	
Planning		
Does the PWS have a wellhead protection plan?	NO	Develop and implement a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	NO	Address plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	Fire Department	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	NO	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and industrial uses within the IWPA and Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN RANDOLPH-HOLBROOK JOINT WATER BOARD WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132531	ADOLPH BAUER INC	763 SOUTH ST	HOLBROOK	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
36865	BOSTON STEEL FABRICATORS INC	610 SOUTH ST	HOLBROOK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
337999	CONTAINER RECYCLING ALLIANCE	620 SOUTH ST	HOLBROOK	DISCH	MWRA SEWER CONNECTION
317888	CVS #1251	790 SOUTH FRANKLIN ST	HOLBROOK	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
359272	FOSTER SOUTHEASTERN INC	46 SPRING ST	HOLBROOK	PLANT	AIR QUALITY PERMIT
32442	HOLBROOK AUTO BODY	200 SOUTH ST	HOLBROOK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
374229	HOLBROOK FOOD MART	855 SOUTH FRANKLIN ST	HOLBROOK	FULDSP	FUEL DISPENSER
136532	PINE HILL SERVICE STATION INC	776 SOUTH FRANKLIN ST	HOLBROOK	FULDSP	FUEL DISPENSER
326808	STEWARTS EQUIPMENT	670 SOUTH FRANKLIN ST	HOLBROOK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
126830	SUNOCO SERVICE STATION	845 SOUTH FRANKLIN ST	HOLBROOK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132173	ACCURATE METAL FINISHING INC	414 SOUTH ST	RANDOLPH	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
132173	ACCURATE METAL FINISHING INC	414 SOUTH ST	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132173	ACCURATE METAL FINISHING INC. - GREAT POND	414 SOUTH ST	RANDOLPH	TURRPT	LARGE QUANTITY TOXIC USER

UNDERGROUND STORAGE TANKS WITHIN RANDOLPH-HOLBROOK JOINT WATER BOARD WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
GRANT STEEL CO INC	2 MEAR RD	HOLBROOK	OTHER	8050	DIESEL
HOLBROOK FOOD MART	855 S FRANKLIN ST	HOLBROOK	GAS STATION	7820	GASOLINE
HOLBROOK FOOD MART	855 S FRANKLIN ST	HOLBROOK	GAS STATION	7820	GASOLINE
SUNOCO	845 S FRANKLIN ST	HOLBROOK	GAS STATION	10000	GASOLINE
SUNOCO	845 S FRANKLIN ST	HOLBROOK	GAS STATION	5000	GASOLINE
SUNOCO	845 S FRANKLIN ST	HOLBROOK	GAS STATION	5000	GASOLINE

FOR MORE INFORMATION ON UNDERGROUND STORAGE TANKS, VISIT THE MASSACHUSETTS DEPARTMENT OF FIRE SERVICES WEB SITE:
[HTTP://WWW.STATE.MA.US/DFS/UST/USTHOME.HTM](http://www.state.ma.us/dfs/ust/usthome.htm)

NOTE: THIS APPENDIX INCLUDES ONLY THOSE FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA(S) THAT MEET STATE REPORTING REQUIREMENTS AND REPORT TO THE APPROPRIATE AGENCIES. ADDITIONAL FACILITIES LOCATED WITHIN THE WATER SUPPLY PROTECTION AREA(S) SHOULD BE CONSIDERED IN LOCAL DRINKING WATER SOURCE PROTECTION PLANNING.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Randolph-Holbrook Joint Water Board Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0000333	775 South St	Holbrook	Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Ipswich Water Division

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Ipswich Water And Sewer Division
<i>PWS Address</i>	272 High Street
<i>City/Town</i>	Ipswich, Massachusetts 01938
<i>PWS ID Number</i>	3144000
<i>Local Contact</i>	Tim Henry – Director of Utilities
<i>Phone Number</i>	(978) 356-6635

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

Groundwater Sources

<i>Well Name</i>	<i>Source ID#</i>
Zone II #: 477	
Susceptibility: High	
Essex Road Wells	3144000-06G
Fellows Road Well	3144000-07G
Zone II #: 520	
Susceptibility: High	
Mile Lane Well	3144000-01G
Zone II #: 521	
Susceptibility: High	
Browns Well	3144000-02G
Zone II #: 533	
Susceptibility: High	
Winthrop Wells #1	3144000-03G
Winthrop Well #2	3144000-04G
Winthrop Well #3	3144000-05G

Surface Water Sources

<i>Source Name</i>	<i>Susceptibility: High</i>
Dow Brook Reservoir	3144000-01S
Bull Brook Reservoir	3144000-02S

The wells for the Ipswich Water Division are located within four separate water supply protection areas, with a portion of the Winthrop Wells protection area extending into the town of Hamilton. Each well has a Zone I radius of 400 feet, except the tubular wells that make up part of Winthrop #1, which have a 250 foot Zone I radius. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The reservoirs for the Ipswich Water Division are located within two separate water supply protection areas, with a portion of the Dow Brook Reservoir water supply protection area extending into the town of Rowley.

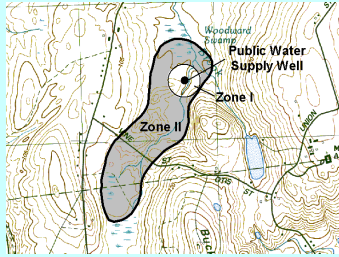
For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone IIs and Zone Cs for Ipswich are primarily a mixture of forest, agriculture, and residential, with a small portion consisting of commercial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Activities in Zone A
3. Golf Course, Plant Nurseries, and Agricultural activities
4. Hazardous Materials Storage and Use
5. Residential Land Uses
6. Oil or Hazardous Material Contamination Sites
7. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone I – The Zone I for each of the wells is a 400 foot radius around the wellhead. Winthrop Well #1 includes a naturally-developed well and 17 tubular wells. The Zone I around each tubular well is only a 250 foot radius. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The following non-water supply activities occur in the Zone Is of the system wells:

Mile Lane Well - The pasturing of cattle occurs in the southern most portion of the Zone I; and Miles Lane cuts through the Zone I in a northeast to southwest direction.

Brown's Well - There are three (3) septic systems in the southwest portion of the Zone I; High Street cuts through the Zone I in a northwest to southeast direction; and there are 63 parking spaces, most of which are associated with an office building in the southwest portion of the Zone I.

Winthrop Wells 1, 2 & 3 - There is the possibility that there are septic systems associated with two houses in the Zone I of Winthrop Wells 2 & 3, along with agricultural activities, pesticide, fertilizer and manure storage, and above ground fuel storage tanks. Also, it appears that there are agricultural activities in the southeast corner of the Zone I for Winthrop Wells #1.

Zone I Recommendations:

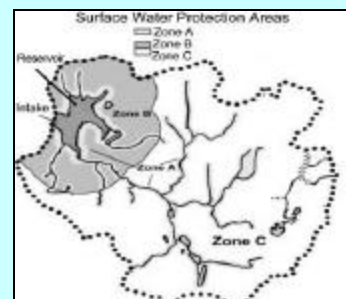
- ✓ To the extent possible, remove all non water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ Agreement Options - Until land is available, attempt to obtain a *Memorandum of Understanding* and *Right of First Refusal*.

Memorandum of Understanding (MOU) is an agreement between the landowner and public water supplier in which the landowner agrees not to engage in specific threatening activities. The MOU should be specific to the land use or activity. For instance, if the land is residential with a septic system the owner could agree not to place chemicals, petroleum products, or other hazardous or toxic substances, including septic system cleaners into the septic system, and that the system will be pumped at a specific frequency. The application of lawn care chemicals could also be restricted. Understanding how and activity threatens drinking water quality is an important component of developing an effective MOU.

Right of First Refusal is a legal document that gives the water supplier first chance to purchase land when it becomes available. See *Right of First Refusal* in Appendices.

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



2. Activities in Zone A - Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; uncontained storage of fertilizers, manure, domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and un-permitted and unauthorized activities.

Wild animals, farm animals, and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. The following activities occur in the Zone A of the system's reservoirs:

Dow Brook Reservoir - The boarding of horses occurs in the Zone A northwest of the intake to the water treatment plant; there are numerous homes throughout the Zone A of the reservoir and tributaries to the reservoir, most of which are on private septic systems; and, the fairways from a golf course occur in the Zone A of tributaries to Dow Brook Reservoir.

Bull Brook Reservoir - There are numerous homes throughout the Zone A of the reservoir and tributaries to the reservoir, most of which are on private septic systems; and, the fairways from a golf course and agricultural activities occur in the Zone A of tributaries to Bull Brook Reservoir

Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.

3. Golf Course, Plant Nurseries and Agricultural Activities – Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If not contained or applied properly, animal waste from barnyards, manure pits and field application is a potential source of contamination to ground and surface water. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Course, Plant Nurseries and Agricultural Activities Recommendations:

- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ Encourage the farmers, nursery, and golf course managers to incorporate an **Integrated Pest Management (IPM)** approach into their pest management program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

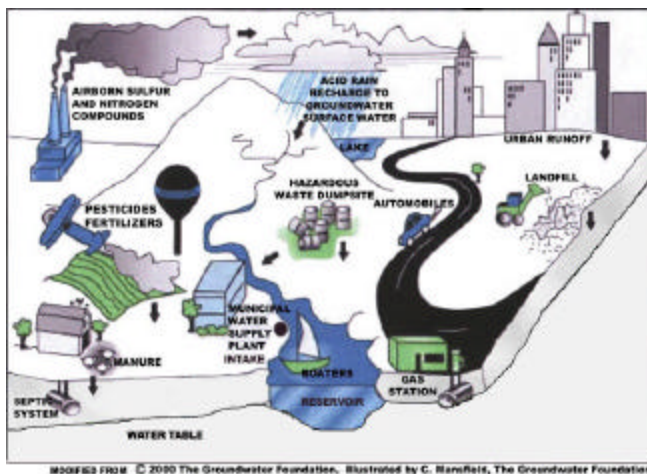


Figure 1: Sample watershed with examples of potential sources of contamination

- ✓ Promote **Best Management Practices (BMPs)** for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Work with farmers, nurseries, and golf courses to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.

4. Hazardous Materials Storage and Use – Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II Number	Zone C Source ID	Potential Contaminant Sources*
Agricultural					
Fertilizer Storage or Use	4	M	520, 521, 533		Leaks, spills, improper handling, or over-application of fertilizers
Livestock Operations	1	M	477		Improper handling of manure (microbial contaminants)
Manure Storage or Spreading	6	H	520, 521, 533, 477	01S, 02S	Improper handling of manure (microbial contaminants)
Nurseries	2	M		01S, 02S	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Pesticide Storage or Use	5	H	520, 521, 533	01S, 02S	Leaks, spills, improper handling, or over-application of pesticides
Commercial					
Body Shops	1	H	521		Improper management of vehicle paints, solvents, and primer products
Service Stations/ Auto Repair Shops	2	H	521		Spills, leaks, or improper handling of automotive fluids, and solvents
Golf Courses	4	M	477, 520	01S, 02S	Over-application or improper handling of fertilizers or pesticides
Railroad Tracks and Yards	1	H	521		Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Industrial					
Food Processors	1	L	521		Spills, leaks, or improper handling or storage of cleaners and other chemicals; microbial contaminants
Residential					
Fuel Oil Storage (at residences)	Numerous	M	520, 521, 533, 477	01S, 02S	Spills, leaks, or improper handling of fuel oil
Lawn Care/ Gardening	Numerous	M	520, 521, 533, 477	01S, 02S	Over-application or improper storage and disposal of pesticides
Septic Systems/ Cesspools	Numerous	M	520, 521, 533, 477	01S, 02S	Microbial contaminants, and improper disposal of hazardous chemicals

Land Uses	Quantity	Threat	Zone II Number	Zone C Source ID	Potential Contaminant Sources*
Miscellaneous					
Aboveground Storage Tanks	2	M	520	02S	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	2	L	520	02S	Microbial contaminants
Fire Training Facilities	2	M	520	02S	Improper use or storage of fuels and other chemicals
Fishing/Boating	2	L	520	02S	Fuel and other chemical spills, microbial contaminants
Oil or Hazardous Material Sites	1	--	521		Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	3	M	520, 521	02S	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small quantity hazardous waste generators	1	M	521		Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Multiple	L	521		Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way Type: electric	1	L		01S	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	5	--	520, 521, 533	01S, 02S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Very Small Quantity Hazardous Waste Generator	3	L	521		Spills, leaks, or improper handling or storage of hazardous materials and waste
Notes:					
<ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <ul style="list-style-type: none"> THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater. 					

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP’s for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floordrain requirements. See brochure “Industrial Floor Drains” for more information.

5. Residential Land Uses – Approximately 25% of the combined Zone II and Zone C consists of residential areas. None of the areas have public sewers, and so all use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

6. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0002554. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

7. Protection Planning – Currently, the Town does not have water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.

Top 5 Reasons to Develop a Local Wellhead and Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). If there are no local controls or they do not meet the current regulations, adopt controls that meet 310 CMR 22.21(2). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floordrains, be sure to include floordrain controls that meet 310 CMR 22.21(2).

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

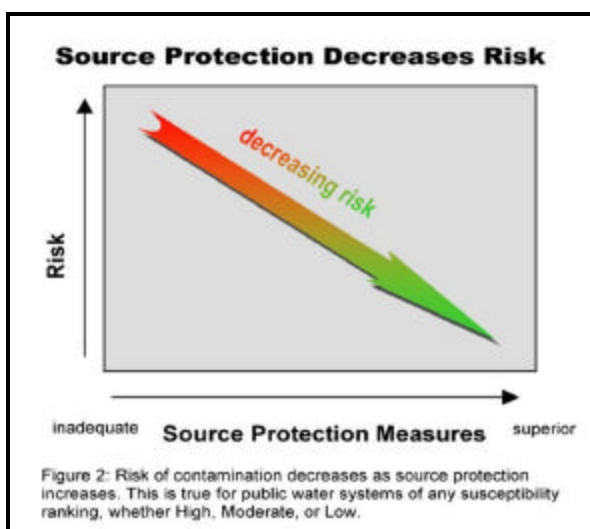
As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Pursuing the purchase of the Zone I for Mile Lane Well that is not currently owned by the Ipswich Water Division.
- Obtaining a conservation restriction for the portion of Brown's Well that is on the opposite side of Mitchell Road.
- Pursuing the Right of First Refusal for a parcel adjacent to Brown's Well for the purpose of relocating the well, thereby removing non-water supply activities from the Zone I.
- The acquisition of a considerable portion of the watershed, and the continued pursuit of additional watershed land.
- Receiving a Source Protection Grant through DEP to develop a comprehensive surface water supply protection plan.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead Protection Plan.



Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program.

Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/nfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and/or Zone A?	YES (Essex Road and Fellows Road)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Brown's, Mile Lane, Winthrop 1, 2, &3, Dow Brook and Bull Brook)	To the extent possible, remove non-water supply activities from each Zone I and prohibited activities in Zone A to comply with DEP's Zone I and Zone A requirements. Investigate options for gaining ownership or control of the Zone I for groundwater sources.
Are the Zone 1 and Zone A posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone 1 and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone 1 and Zone A?	YES (Essex Road and Fellows Road)	Continue monitoring for non-water supply activities in Zone As.
	NO (Brown's, Mile Lane, Winthrop 1, 2, & 3 Wells, Dow Brook and Bull Brook Reservoirs)	Monitor non-water supply activities in Zone I and prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)	NO	Continue working with the Planning Board and the Board of Selectmen to adopt land use controls that meet 310 CMR 22.21(2) and 310 CMR 22.20C. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	YES	Hamilton has incorporated adjacent community Zone IIs in their Groundwater Protection Overlay District. Submit a copy to Hamilton of the Ipswich Zone II that lies within Hamilton so that it may be incorporated into <u>Hamilton's Groundwater Protection Overlay District Map</u> .
Planning		
Does the PWS have a local surface water and well-head protection plan?	NO	Develop a surface water supply protection plan. Follow "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ . Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	NO	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed and well-head protection committee?	YES	Reconvene committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Floor drain inspection was conducted in conjunction with DEP. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the <u>Zone II and Zone C</u> .

APPENDIX A: DEP PERMITTED FACILITIES WITHIN IPSWICH WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
281545	CHOICE GRAPHICS	195 HIGH STREET	IPSWICH	HANDLER	VERY SMALL QUANTITY GENERATOR
294691	HALLMARK CLEANERS INC.	138 HIGH STREET	IPSWICH	HANDLER	VERY SMALL QUANTITY GENERATOR
34585	PAULS AUTO & TRUCK	176 HIGH STREET	IPSWICH	HANDLER	VERY SMALL QUANTITY GENERATOR
34585	PAULS AUTO & TRUCK	176 HIGH STREET	IPSWICH	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
34585	PAULS AUTO & TRUCK	202 HIGH STREET	IPSWICH	RECYCLER	RECYCLER – BURNER/BLENDER

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Ipswich Water Supply Protection Areas

DEP's datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP's Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP's Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

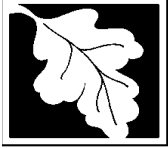
For more information about the state's OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0002554	206 High Street	Ipswich	Oil

For more location information, please see the attached map. The map lists the release sites by RTN.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Lawrence Water Department

What is SWAP?

The Source Water Assessment and Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Lawrence Water Department
<i>PWS Address</i>	City Hall/200 Common Street - Room 204
<i>City/Town</i>	Lawrence , Massachusetts 01840
<i>PWS ID Number</i>	3149000
<i>Local Contact</i>	Robert Fazio
<i>Phone Number</i>	(978) 794-5770

Introduction

We are all concerned about the quality of the water we drink. Public wells, reservoirs and rivers may be threatened by potential contaminant sources, including storm runoff, spills, and improper disposal of hazardous materials. Citizens, businesses and local officials can work together to better protect these drinking water sources.

Purpose of this report:

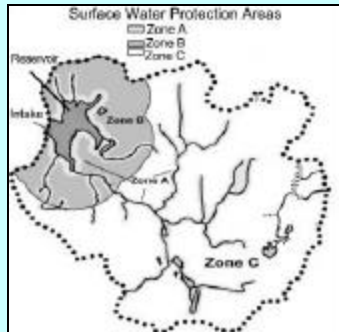
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

This report includes the following sections:

1. Description of the Water System
2. Land Uses in the Watershed
3. Source Water Protection
4. Emergency Planning Recommendations
5. Additional Resources Available for Source Water Protection
6. Appendices

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Ashburnham. Sixteen percent (16%) of the watershed in Massachusetts upstream of the Lawrence intake is listed in DEP's Geographic Information System (GIS) databases as protected open space. The other 84% contains a mix of land uses such as residential homes, shopping malls, businesses, industrial processes, transportation corridors, agriculture, utility lines and recreation facilities.

Class B Drinking Water Sources

There are twelve Class B drinking water sources on rivers in Massachusetts, eleven in the urbanized northeast and one in the western part of the State. Five of these sources are located on the Merrimack River. The large watersheds and historically urbanized land uses associated with major rivers make source protection a challenge at the Class B sources.

A Class B water body source such as the Merrimack River does not have Zone A, B and C protection areas, as do Class A water body sources. For the purposes of the SWAP assessments, a 400 foot setback area along the river and all feeder streams has been delineated for Class B water body sources that is referred to as an "Emergency Planning

Class B River Intakes

Class B water sources do not have Zone A, B and C protection areas as the Class A sources do. For the purposes of this report, an "Emergency Planning Zone" has been delineated. The **Emergency Planning Zone** is the land area within 400 feet of both sides of the river including all tributary streams and surface water bodies.

Zone". Land uses and activities within this zone are of particular concern for source protection and emergency planning because of their proximity to the water supply.

River drinking water sources are particularly susceptible to spills and accidental releases from public and private discharges; accidents related to vehicles, railroads, airports, boats; utility easements; fixed site releases at industrial and public facilities; inappropriate use of pesticides and fertilizers; improper disposal of hazardous household waste; and illegal dumping of a variety of substances.

This assessment has been conducted on the watershed area upstream of the Lawrence intake to the state boundary. Potential threats that have been identified in New Hampshire have also been included. In addition, DEP has delineated a 400-foot emergency planning zone (shown on the GIS map that accompanies this report) adjacent to the river and its tributaries, up to the state boundary, for the purpose of this assessment.

Section 1: Description of the Water System

<i>Source Name</i>	<i>Source ID</i>	<i>Susceptibility</i>
Merrimack River	3149000-01S	High

The Lawrence Water Department (Lawrence) withdraws water from the Merrimack River to supply drinking water to the community of Lawrence. The Massachusetts Surface Water Quality Standards classify the Merrimack River as a Class B waterway. That means that the water withdrawn for drinking water purposes must be treated.

For current information on monitoring results and treatment or for a copy of the most recent Consumer Confidence Report, please contact the public water system contact person listed above in Table 1. Drinking water monitoring data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Merrimack River Watershed

The Merrimack River flows for 78 miles through New Hampshire and for another 50 miles in Massachusetts, from Lowell to Newburyport and into the Atlantic Ocean. There are 1,200 square miles of watershed in Massachusetts in all or part of 24 communities. Upstream of the Lawrence drinking water intake, the following communities are in the Merrimack River watershed: Methuen, Andover, Tewksbury, Dracut; Lowell; Chelmsford; Tyngsboro; Westford; Dunstable; Groton; Ayer; Littleton; Harvard; Boxborough; Ashby; and,

This report contains a list of regulated facilities that are located within the watershed. Page 11 of this report contains recommendations for emergency planning.

Section 2: Land Uses in the Protection Areas

The protection area for Lawrence is a mixture primarily of residential, commercial, industrial, and forest land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues Include:

1. Activities in Emergency Planning Zone
2. Agricultural Activities
3. Hazardous Materials Manufacture, Storage and Use
4. Transportation Corridors
5. Stormwater Flows
6. Railroad Tracks
7. Transmission Lines
8. Combined Sewer Overflows
9. Recreation (beaches, campgrounds, boating)
10. Golf Courses
11. Road and Maintenance Depots
12. Federal Superfund Site and Oil or Hazardous Material Contamination Sites
13. Residential
- 14.

1. Activities in Emergency Planning Zone - The Emergency Planning Zone is a 400 foot setback on either side of the river and all tributaries to a Class B river intake. Land use activities within an Emergency Planning Zone may have an

impact on surface water sources. Wild animals and domestic pet wastes can carry waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. while septic systems and road runoff can carry these as well as other contaminants.

Emergency Planning Zone Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Monitor and review activities within the Emergency Planning Zone.

2. Agricultural Activities – Agricultural land uses, cropland and pastures, comprise about 5% of the watershed. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, underground and aboveground storage tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills. Agricultural activities can also be a potential source of microbial contamination from improper manure management.

Agricultural Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Work with farmers to make them aware of the water supply and to encourage the use of a U.S. Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ The Massachusetts Department of Food & Agriculture’s booklet titled “On-Farm Strategies to Protect Water Quality - An Assessment & Planning Tool for Best Management Practices” (December 1996) describes technical and financial assistance programs related to the control of erosion and to the management of nutrients, pests, manure, grazing and irrigation.
- ✓ Work with farmers to ensure that pesticides, fertilizers and manure are being stored within a structure designed to prevent runoff.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

What are BMPs?

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

3. Chemical and Hazardous Materials Manufacture, Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in USTs and ASTs. Although many facilities within the watershed use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.
- ✓ Monitor water quality in the Merrimack River.
- ✓ Continue to plan and prepare for spills by communicating with facilities and conducting drills.

4. Transportation Corridors - Route 3, Route 495 and other paved and unpaved local roads and highways cross through the watershed. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

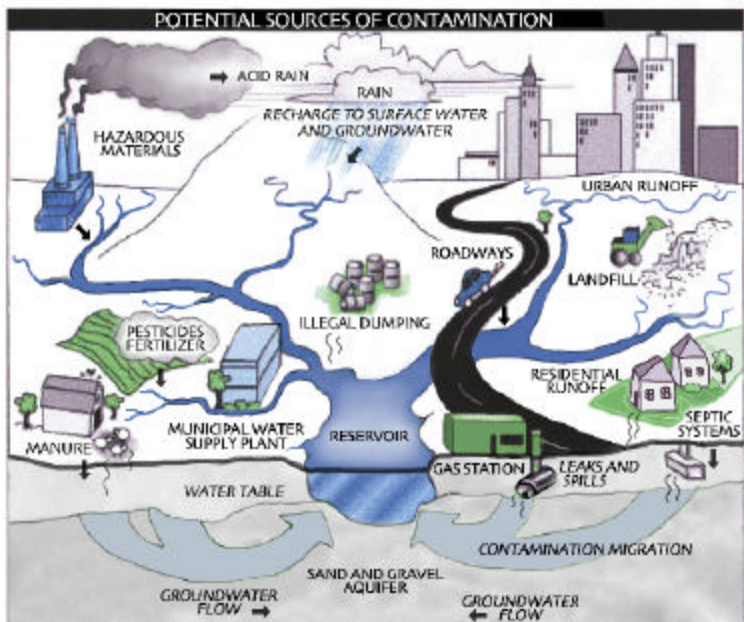
(Continued on page 8)

**When you fertilize the lawn,
Remember
you're not *just* fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108



Modified from: © 2000 The Groundwater Foundation, Illustrated by C. Hazenfeld, The Groundwater Foundation

Figure 1: Sample watershed with examples of potential sources of contamination.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Uses in the Watershed

For more information, refer to Appendix B: Regulated Facilities.

Land Uses	Quantity	Threat	Potential Sources of Contamination*
Agricultural			
Fertilizer Storage or Use	Few	M	Leaks, spills, improper handling, or over-application of fertilizers
Livestock Operations	1	M	Improper handling of manure (microbial contaminants)
Manure Storage or Spreading	1	H	Improper handling of manure (microbial contaminants)
Pesticide Storage or Use	Few	H	Leaks, spills, improper handling, or over-application of pesticides
Commercial			
Airports	1	H	Spills, leaks, or improper handling of fuels, de-icers, salt, and other hazardous chemicals
Body Shops	2	H	Improper management of vehicle paints, solvents, and primer products
Gas Stations	16	H	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	8	H	Spills, leaks, or improper handling of automotive fluids, and solvents
Bus and Truck Terminals	2	H	Spills, leaks, or improper handling of fuels and maintenance chemicals
Car/Truck/Bus Washes	1	L	Improper management of vehicle wash water; soaps; oils; greases; metals; salts
Cemeteries	Few	M	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Dry Cleaners	1	H	Spills, leaks, or improper handling of solvents and wastes
Funeral Homes	Few	L	Spills, leaks, or improper handling of hazardous chemicals
Furniture Stripping and Refinishing	1	H	Spills, leaks, or improper handling of hazardous chemicals
Golf Courses	8	M	Over-application or improper handling of fertilizers or pesticides
Laundromats	1	L	Improper management of wash water
Printer and Blueprint Shops	1	M	Spills, leaks, or improper handling or storage of printing inks and chemicals

Land Uses	Quantity	Threat	Potential Sources of Contamination
Commercial			
Railroad Tracks and Yards	4	H	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Sand and Gravel Mining/Washing	Few	M	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial			
Asphalt, Coal Tar, and Concrete Plants	1	M	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Chemical Storage or Manufacture	Numerous	H	Spills, leaks, or improper handling or storage of chemicals or process waste
Food Processors	2	L	Spills, leaks, or improper handling or storage of cleaners and other chemicals; microbial contaminants
Hazardous Materials Storage	Numerous	H	Spills, leaks from improper handling or storage of hazardous waste
Industrial Parks	Few	H	Leaks, spills of chemicals from improper handling or storage
Nuclear Power Plants	1	H	Spills, leaks, or improper handling of radioactive materials
Plastic Manufacturers	1	H	Spills, leaks, or improper handling or storage of solvents, resins and process wastes
Residential			
Fuel Oil Storage (at residences)	100+	M	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	100+	M	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	100+	M	Microbial contaminants, improper disposal of hazardous chemicals
Miscellaneous			
Aboveground Storage Tanks	Few	M	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	100+	L	Microbial contaminants
Combined Sewer Overflows	Few	L	Microbial and non-microbial contaminants including industrial wastewater; improper disposal of hazardous wastes
Fishing/Boating	100+	L	Fuel and other chemical spills, microbial contaminants
Landfills and Dumps	2	H	Seepage of leachate
Large Quantity Hazardous Waste Generators	14	H	Spills, leaks, or improper handling or storage of hazardous materials and waste
Military Facilities (Past And Present)	1	H	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump sites
NPDES Locations	2	L	Improper disposal of hazardous material and wastes

Land Uses	Quantity	Threat	Potential Sources of Contamination
Oil or Hazardous Material Sites	100+	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	Spills, leaks, or improper handling or storage of de-icing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	Few	M	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	28	M	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/Retention Basins	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Superfund Sites	1	H	Spills, leaks, or improper handling or storage of oil or hazardous materials and waste
Transmission Line Rights-of-Way	7	L	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	3	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	100+	H	Spills, leaks, or improper handling of stored materials
Utility Substation Transformers	1	L	Spills, leaks, or improper handling of chemicals and other materials including PCBs
Very Small Quantity Hazardous Waste Generators	100+	L	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/Recycling Stations	3	M	Improper management, seepage, and runoff of water contacting waste materials
Water Treatment Sludge Lagoons	3	M	Improper management of sludge and wastewater
<p>Notes:</p> <ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities. 3. For information about Oil or Hazardous Materials Sites, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - Where there are two rankings, the first is for ground water, the second for surface water. The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>			

De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins. The steep topography of the watershed results in application of de-icing materials to protect public health and safety by keeping the roads passable.

Transportation Corridor Recommendations:
Work with communities within the Merrimack watershed to:

- ✓ Establish vegetated buffers along roads and parking areas to provide some filtration of contaminants.
- ✓ Encourage regular street sweeping. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.
- ✓ Conduct emergency drills to be ready for spills.
- ✓ Regularly inspect the watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ Work with the City and State to have catch basins inspected, maintained, and cleaned on a regular schedule.

5. Stormwater Flows - Stormwater from roads and commercial development, such as malls in Nashua, New Hampshire, flows directly into the Merrimack River and its

tributaries. Stormwater may contain debris, chemicals, bacteria, and nutrients that can impact water quality in the river. Spills can enter the river through stormwater flows.

Stormwater Flows Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Encourage parking lot sweeping in commercial areas.
- ✓ Conduct routine testing for bacteria in river after storms.
- ✓ Continue to plan and prepare for spills.
- ✓ If storm drainage maps are available, review the maps with emergency response teams.

6. Railroad Rights-of-Way - Railroad tracks are located along the bank of the Merrimack River. Railroad rights-of-way are potential sources of contamination because of the possibility of spills of transported materials, chemical releases during track maintenance or the over-application or improper handling of herbicides during rights-of-way maintenance.

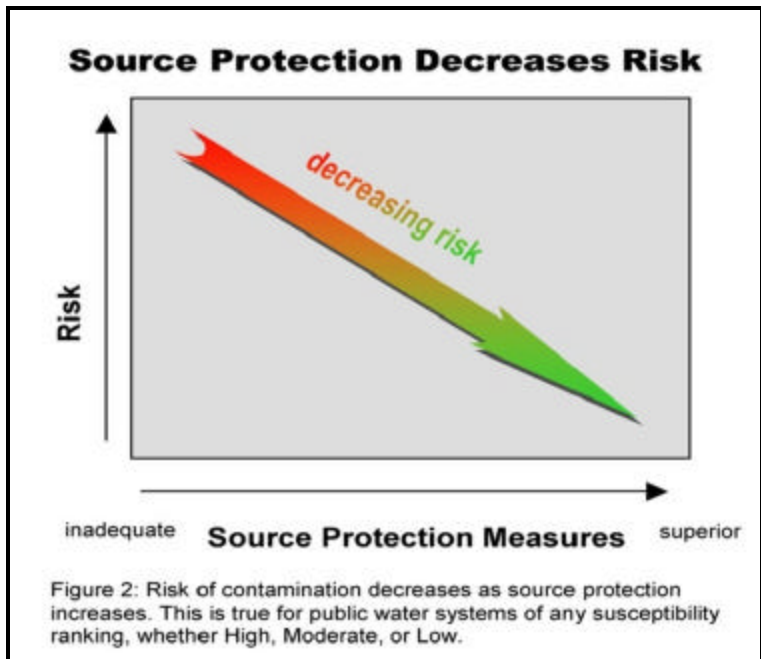
The Rights-of-Way Management Regulations (333 CMR 11.00) were designed to minimize any potential harmful effects of herbicides used

**When you wash your car in the driveway,
Remember
you're not just washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb, then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

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for vegetation control along rights-of-way in Massachusetts. The regulations promote the use of an integrated pest management (IPM) approach to vegetation control and require application setback distances to protect drinking water sources and other environmentally sensitive areas. Utilities must submit a Vegetation Management Plan (VMP) and a Yearly Operating Plan (YOP) to the Mass. Department of Food and Agriculture for approval and to the municipalities within which herbicide application is proposed.

Railroad Rights-of-Way Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Review the utility's YOP to ensure that BMPs for herbicide applications are in place.
- ✓ Plan for spills and conduct emergency response drills to test procedures.

7. Transmission (Utility) Lines - Transmission lines run throughout the watershed. These are potential sources of contamination because of the possibility of over-application or improper handling of herbicides during rights-of-way maintenance.

Transmission (Utility) Lines Recommendation:

Work with communities within the Merrimack watershed to:

- ✓ Monitor the YOP for pesticide applications.

8. Combined Sewer Overflows (CSOs) - Overflows from the Nashua, New Hampshire sewer system have the potential to cause microbial and non-microbial contaminants to enter the river during high stormwater flows.

Combined Sewer Overflows Recommendation:

Work with communities within the Merrimack watershed to:

- ✓ Continue working with existing committees and legislators on CSOs.

9. Recreation (beaches, campgrounds, boating) - the Merrimack River is a popular regional water resource and is used extensively for boating and fishing.

Other recreational uses include beaches and campgrounds along the shoreline.

Recreation Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Post water supply awareness signs along the banks of the river, at access points, and at the Lawrence Water Department river intake.
- ✓ Incorporate drinking water protection education into community events.
- ✓ Develop a boater education program that address issues specific to boating and source protection
- ✓ Encourage boaters and other users to report spills.

10. Golf Courses - There are six golf courses within the assessment area. Potential contaminants include the over-application or improper handling of pesticides and fertilizers. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Courses Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Encourage the golf course grounds manager to incorporate an Integrated Pest Management (IPM) approach into their grounds maintenance program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote Best Management Practices (BMPs) for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Contact owners/operators about water supply awareness and protection.

11. Road and Maintenance Depots - Potential sources of contamination in state and municipal facilities can result from accidental dumping, spills, leaks, vehicle washing operations, or from wastewater treatment. Waste management

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

and product storage pose the greatest threats with a wide variety of potentially harmful contaminants.

Road and Maintenance Depots Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/necat/muni/index.html>. Encourage road and maintenance depots to develop best management practices to ensure proper salt storage, proper maintenance of facilities and good housekeeping practices.
- ✓ Salt pile structures should be adequately sized to allow for the loading and unloading of salt within the structure. Review the Department of Environmental Protection's Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.
- ✓ Encourage proper storage of materials at these facilities. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.

12. Presence of Federal Superfund Site and Oil or Hazardous Material Contamination Sites

- The watershed for the Merrimack River contains a United States Environmental Protection Agency (USEPA) Superfund Site that is

associated with DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 2-0000136. The watershed within the City of Lawrence also contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 3-0019584 and 3-0020482. Refer to the attached maps and Appendix B for more information on these sites, and for information on DEP Tier Classified Oil and/or Hazardous Material Release Sites within the watershed for the Merrimack River.

Federal Superfund Site and Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

Information about DEP Tier Classified Oil or Hazardous Material Release Sites can be obtained at DEP's Bureau of Waste Site Cleanup's web site, www.state.ma.us/dep/bwsc.

13. Residential - Over 30% of the assessment area consists of residential land uses. If managed improperly, household hazardous waste, septic systems, lawn care and pet waste can all contribute to ground and surface water contamination. Household hazardous wastes include automotive wastes, paints, solvents and other substances that should be disposed of properly at a municipal collection site. If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Improperly applied fertilizers and pesticides can wash off lawns and into surface waters. Pet waste may contain bacteria, parasites or viruses that are health risks.

- **Septic Systems** - Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Residential Land Use Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Control residential growth on undeveloped land.
- ✓ See www.state.ma.us/envir/ to obtain information on the build-out analyses for communities into which the watershed extends.
- ✓ Educate residents on how to protect water supplies. Distribute the fact sheet *Residents Protect Drinking Water* available in Appendix A and at www.mass.gov/dep/brp/dws/protect.htm.
- ✓ Post water supply awareness signs on streets throughout the watershed.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

- ✓ Work with city boards and upstream communities to review and provide recommendations on proposed watershed development.

Other land uses and activities within the emergency planning zone and watershed that are potential sources of contamination are included in Table 2. Refer to Appendix A for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection

Current Land Uses and Source Protection:

As with many water systems, this watershed contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The Lawrence Water Department is commended for taking an active role in protecting their drinking water source. Some examples of the staff's good work include the following:

Emergency Planning and Response - The Water Department works with upstream communities in Massachusetts and New Hampshire on emergency response planning. They have an emergency management committee and coordinate activities with the Massachusetts Emergency Management Agency (MEMA) facility in Tewksbury.

Communication with Other Communities - The Water Department maintains contact with upstream communities, including those in New Hampshire, on a variety of source protection issues.

Section 4: Emergency Planning Recommendations

Prevention

Public water suppliers with a river source may take preventive measures to protect the source from unexpected releases. Here are some suggestions.

1. Title III (Emergency Planning and Community Right-to-Know) of the Superfund Amendments & Reauthorization Act (SARA) of 1986 required that each community **develop a comprehensive emergency response plan**. Suppliers should review the existing plan to ensure that water supply issues are satisfactorily addressed in the plan, that current response personnel and their correct telephone numbers are listed, and that the entire plan is regularly reviewed and updated by community officials.

The community plan, or a separate water supplier plan, should include copies of policies in the event of spills or releases; regulatory notification requirements such as what size spills are required to be reported, who to call, telephone numbers, and what information is required to be reported; map of intakes, tributaries, watershed boundaries, adjacent public wells, and locations of sites where spills or accidental releases could occur.

2. **Identify, map and distribute information** to local emergency responders regarding the locations of intakes on the river, tributaries, watershed boundaries, public wells adjacent to river; chemical use at municipal, state, and industrial facilities in watershed (contact Fire Dept., DEP); locations of stormwater drains and the locations of known dams in the event that they can be manipulated by authorized individuals for contaminant control.

The Fire Dept., Board of Health, Planning Board, Local Emergency Planning Committee (LEPC), DEP and others may have existing information to help with your work. SARA requires companies to work with the community's LEPC if they handle extremely hazardous chemicals in quantities above established thresholds.

3. **Develop a communication list** of contacts at upstream and downstream facilities, dams, as well as other public water suppliers on, or adjacent to, rivers. Notify owners and operators of these facilities about the location of your intake and request, in writing, that you be notified immediately in the event of a chemical spill or unexpected discharge. Take this opportunity to educate others about water supply protection.
4. **Provide comments** to municipal boards in other cities/towns in the watershed about proposed development, land use controls, Best Management Practices (BMPs) for stormwater flow into tributaries, and other issues to avoid future problems.

5. **Post signs** along major roads in watershed which direct the public to call "911" or other appropriate local number in case of spills. Be aware of accident-prone areas and transport routes of chemicals if possible.
6. **Educate** the public, local officials, Civil Defense, local emergency response team, and others about water supply protection issues. Educate businesses about toxic use reduction.
7. **Conduct household hazardous waste collection days** and establish permanent collection sites, away from sensitive watershed areas, for used batteries, paints, motor oil, etc.
8. **Conduct drills**, in coordination with local/regional response teams, to test policies and procedures and to practice responding to various situations. Including businesses, local officials and staff, Fire Departments, Boards of Health, Civil Defense, school administration, and others in planning and implementing the drills will allow for several town or region-wide concerns to be addressed and tested at the same time, including: issuing health advisories, conducting neighborhood and/or school evacuations, and evaluating the town's communication system (both making responders aware of the emergency and issuing advisories to the public when necessary via television, radio, and other news media), equipment and emergency plan in general.
9. Critique the drills and **modify components** of the emergency response system as needed.

Responding to Emergencies

Drinking water supply professionals responding to local emergencies need to be adequately prepared and trained, and know their roles and responsibilities. Here are some suggestions.

1. **Know regulatory reporting requirements** of state and federal agencies. Know who to call, telephone numbers and what information to report.
2. **Know your role & responsibilities**. Have access to, and be familiar with, the emergency communication list, policies and procedures for emergency response; know when, and how, to safely handle spills or other events until first responders arrive on scene; know what steps to take to avoid drawing contaminants into the water supply system; be familiar enough with local watershed characteristics to provide incident commander with information and advice.
3. **Provide training and materials to responding staff**. Water supply staff, including new employees, should be adequately trained, have access to appropriate materials (storm drain covers, absorbent pads, booms, etc.), up-to-date policies, procedures, and communication lists to perform tasks for which they are responsible.

Follow-up

Steps can be taken to ensure better preparedness in the event of future emergency situations. Here are some suggestions.

1. **Provide follow-up reports** to the public on the resolution of the situation.
2. **Share the information** learned from drills and real situations with others in order to better protect all public drinking water sources.

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in the Key Issues above and Appendix A.

Section 5: Additional Resources Available for Source Water Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Source Protection Grant Program provides funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response (RFR) for the grant program.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watershed. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Information about DEP Tier Classified Oil or Hazardous Material Release Sites can be obtained at DEP's Bureau of Waste Site Cleanup's web site, www.state.ma.us/dep/bwsc. Sites are identified on the attached GIS map and site specific information is available in Appendix C.

Section 6: Appendices

- A. Protection Recommendations
- B. List of Regulated Facilities (in Massachusetts)
- C. Table of Tier Classified Oil and/or Hazardous Material Sites
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's NERO at (617) 654-6535 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN LAWRENCE'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132441	EISAI RESEARCH INSTITUTE	4 CORPORATE DR	ANDOVER	TURRPT	LARGE QUANTITY TOXICS USER
31379	HEWLETT PACKARD COMPANY	1776 MINUTEMAN RD	ANDOVER	TURRPT	LARGE QUANTITY TOXICS USER
131306	HEWLETT PACKARD COMPANY	3000 MINUTEMAN RD	ANDOVER	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
133314	M K S INSTRUMENTS INC	6 SHATTUCK RD	ANDOVER	TURRPT	LARGE QUANTITY TOXICS USER
130130	US INTERNAL REVENUE SERVICE	310 LOWELL ST	ANDOVER	PLANT	AIR QUALITY PERMIT
215576	VICOR CORPORATION	400 FEDERAL ST	ANDOVER	TURRPT	LARGE QUANTITY TOXICS USER
215576	VICOR CORPORATION	400 FEDERAL ST	ANDOVER	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
38043	NEW ENGLAND HYDRO TRANS ELECTRIC	RADISSON RD	AYER	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
--	BROOK VILLAGE CONDO	C/O RELIABLE PROP. MGMT/P.O. BOX 210	BOXBOROUGH	GROUND	GROUNDWATER DISCHARGE
39155	CHELMSFORD LANDFILL	SWAIN RD	CHELMSFORD	SLF	CHARGEABLE CLOSED LANDFILL
366769	MERRIMACK VALLEY SCREEN PRINTING INC	6 ADAMS ST	CHELMSFORD	PLANT	NON-NOTIFIER AQ FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
366769	MERRIMACK VALLEY SCREEN PRINTING INC	6 ADAMS ST	CHELMSFORD	DISCH	NON-NOTIFIER IWW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
130648	BROX INDUSTRIES INC	1471 METHUEN STREET	DRACUT	HWR	HAZARDOUS WASTE RECYCLER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131963	UNITED CIRCUITS INC	100 PLEASANT ST	DRACUT	TURRPT	LARGE QUANTITY TOXICS USER
131963	UNITED CIRCUITS INC	100 PLEASANT ST	DRACUT	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
366857	DUNSTABLE GAS INC	238 PLEASANT ST	DUNSTABLE	FULDSP	FUEL DISPENSER STAGEII
32187	WEST AUTO REPAIR	30 PLEASANT ST	DUNSTABLE	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	FULDSP	FUEL DISPENSER STAGEII
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
39315	GROTON LANDFILL	600 COW POND BRK RD	GROTON	SLF	CHARGEABLE LANDFILL
363409	GROTON TRANSFER STATION	600 COW POND BROOK RD	GROTON	TRSTN	SMALL HANDLING FACILITY
377537	AGGREGATE INDUSTRIES	80 AYER RD	LITTLETON	TURRPT	LARGE QUANTITY TOXICS USER
229723	MIDDLESEX CONCRETE	80 AYER RD	LITTLETON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
186901	VERYFINE PRODUCTS INC	20 HARVARD ROAD	LITTLETON	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
363549	WAKEFIELD MATERIALS CORPORATION LITTLETO	80 AYER RD	LITTLETON	TURRPT	LARGE QUANTITY TOXICS USER
370173	CHEVROLET OF LOWELL INC	831 ROGERS ST	LOWELL	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
370173	CHEVROLET OF LOWELL INC	831 ROGERS ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
53879	FREUDENBERG NONWOVEN	221 JACKSON ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
53879	FREUDENBERG NONWOVEN	221 JACKSON ST	LOWELL	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131011	IDEAL TAPE CO	1400 MIDDLESEX ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131011	IDEAL TAPE COMPANY	1400 MIDDLESEX ST	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
177799	JIFFY LUBE	645 ROGERS ST	LOWELL	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
177799	JIFFY LUBE	645 ROGERS ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
53845	LOWELL COGENERATION COMPANY LP	282 WESTERN AVE	LOWELL	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
53845	LOWELL COGENERATION COMPANY LP	282 WESTERN AVE	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
53845	LOWELL COGENERATION COMPANY LP	282 WESTERN AVE	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
131026	MA COM INC	100 CHELMSFORD ST	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
131026	MA COM INC	100 CHELMSFORD ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
215603	NE NO6 INC SPEEDEE OIL CHANGE & TUNE UP	1485 MIDDLESEX ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
35763	NTI LUBRICATIONS INC	1713 MIDDLESEX ST	LOWELL	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
35763	NTI LUBRICATIONS INC	1713 MIDDLESEX ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
121233	OAK FINISHERS CO	REAR 165 JACKSON ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
295908	RADIOLOGY RESOURCES INC	225 STEDMAN STREET - UNIT #33	LOWELL	HWR	HAZARDOUS WASTE RECYCLER
131016	ROCHE BROTHERS BARREL & DRUM CO	161 PHOENIX AVE	LOWELL	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
365455	SPECIALTY MATERIALS INC	1449 MIDDLESEX AVE	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
365455	SPECIALTY MATERIALS INC	1449 MIDDLESEX AVE	LOWELL	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131030	TEXTRON SPECIALTY CORPORATION	1449 MIDDLESEX STREET	LOWELL	TURRPT	LARGE QUANTITY TOXICS USER
131030	TEXTRON SPECIALTY CORPORATION	1449 MIDDLESEX STREET	LOWELL	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
34343	ASHLAND CHEMICAL CO	400 MAIN ST	TEWKSBURY	HANDLR	TRANSPORTER OF HAZARDOUS WASTE
34343	ASHLAND CHEMICAL COMPANY	400 MAIN ST	TEWKSBURY	TURRPT	LARGE QUANTITY TOXICS USER
53791	ECRM	554 CLARK RD	TEWKSBURY	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
370388	3A GAS	257 MIDDLESEX RD	TYNGSBORO	FULDSP	FUEL DISPENSER
322941	ANDYS AUTO BODY	339 WESTFORD ST	TYNGSBORO	PLANT	AIR QUALITY PERMIT
322941	ANDYS AUTO BODY	339 WESTFORD ST	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
348617	BARR ASSOC INC	300 POTASH HILL RD	TYNGSBORO	PLANT	AIR QUALITY PERMIT
320025	BELCASTRO FURNITURE RESTORATION	77 WESTECH DR	TYNGSBORO	PLANT	AIR QUALITY PERMIT
320025	BELCASTRO FURNITURE RESTORATION	77 WESTECH DR	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132303	BFI WASTE SYSTEMS OF NORTH AMERICA	385 DUNSTABLE RD	TYNGSBORO	PLANT	AIR QUALITY PERMIT

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132303	BFI WASTE SYSTEMS OF NORTH AMERICA	385 DUNSTABLE RD	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
132303	BFI WASTE SYSTEMS OF NORTH AMERICA	385 DUNSTABLE RD	TYNGSBORO	DISCH	INDUSTRIAL WASTE WATER SURFACE WATER DISCHARGE
298585	BRITE KLEEN CLEANERS	26 WESTFORD RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32160	COLONIAL AUTO BODY	121 LAKEVIEW AVE	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
110594	DANA WALLBOARD SUPPLY INC	6 CUMMINGS RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
302562	DUFFS GARAGE	92 KENDALL RD	TYNGSBORO	DISCH	BELOW INDUSTRIAL WASTE WATER REG LEVELS
302562	DUFFS GARAGE	92 KENDALL RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
291199	DUNBAR BUS CO	33 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132214	HUSSEY PLASTICS INC	65 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
307332	INDEPENDENT SPRAY	26R WOODLAWN ST	TYNGSBORO	PLANT	AIR QUALITY PERMIT
307332	INDEPENDENT SPRAY	26R WOODLAWN ST	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
368183	MOBIL 12369	95-97 WESTFORD RD	TYNGSBORO	FULDSP	FUEL DISPENSER
324984	MUTUAL OIL	397 MIDDLESEX RD	TYNGSBORO	FULDSP	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
321837	MUTUAL OIL CO INC	397 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
368441	NEW ENGLAND TRANSIT SALES INC	30 PROGRESS AV	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
132833	PICONICS INC	26 CUMMINGS RD	TYNGSBORO	PLANT	AIR QUALITY PERMIT
132833	PICONICS INC	26 CUMMINGS RD	TYNGSBORO	DISCH	INDUSTRIAL WASTE WATER HOLDING TANK
132833	PICONICS INC	26 CUMMINGS RD	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
853	THUNDERBIRD PLAZA	MIDDLESEX RD	TYNGSBORO	GROUND	GROUNDWATER DISCHARGE
209890	TJ MAXX PLAZA	440 MIDDLESEX RD	TYNGSBORO	GROUND	GROUNDWATER DISCHARGE
230673	TOWN AND COUNTRY GARAGE	54 PAWTUCKET BLVD	TYNGSBORO	FULDSP	FUEL DISPENSER
37104	TYNGSBORO AUTO WORKS	33 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
310633	TYNGSBORO HIGHWAY DEPT	89 KENDELL RD	TYNGSBORO	FULDSP	FUEL DISPENSER
130848	WESTFORD ANODIZING CORP	12 NORTH MAIN ST	WESTFORD	TURRPT	LARGE QUANTITY TOXICS USER

UNDERGROUND STORAGE TANKS WITHIN LAWRENCE'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
MOBIL	309 LOWELL ST	ANDOVER	GAS STATION	3
MOBIL	139 RIVER RD	ANDOVER	GAS STATION	5
M W LEAHY CO INC	21 WESTFORD RD	AYER	TRUCK/TRANSPORT	3
MASS DPW MAINT DEPOT	SWANSON RD	BOXBOROUGH	STATE	2
VERC BOXBORO EXXON	1425 MASSACHUSETTS AVE	BOXBOROUGH	GAS STATION	4
CONOCOPHILLIPS EXXON	5 DRUM HILL RD	CHELMSFORD	GAS STATION	3
CUMBERLAND GULF #2428	71 DRUM HILL RD	CHELMSFORD	GAS STATION	5
MARCHAND OIL CO INC	89 STEADMAN ST	CHELMSFORD	PETROLEUM DISTRIBUTOR	7
SUNOCO #0011-8927	100 DRUM HILL RD	CHELMSFORD	GAS STATION	3
BROX INDUSTRIES INC	1471-1480 METHUEN ST	DRACUT	CONTRACTOR	
DRACUT AUTO CARE INC	500 NASHUA RD	DRACUT	GAS STATION	3
HIGHWAY DEPT	833 HILDRETH ST	DRACUT	MUNICIPAL	2
JAY'S SERVICE CENTER INC	1225 MAMMOTH RD	DRACUT	GAS STATION	6

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
JIM'S SERVICE STATION INC	1643 LAKEVIEW AVE	DRACUT	GAS STATION	4
P J KEATING COMPANY	240 BRIDGE ST	DRACUT	ASPHALT PLANT	1
SHELL SERVICE STATION	1100 LAKEVIEW ST	DRACUT	GAS STATION	3
DUNSTABLE GENERAL STORE INC	238 PLEASANT ST	DUNSTABLE	GAS STATION	3
A L PRIME ENERGY	619 BOSTON RD	GROTON	GAS STATION	3
TOWN OF GROTON HIGHWAY DEPT	500 COW POND BROOK RD	GROTON	MUNICIPAL	2
LARRY'S SERVICE	665 HAVERHILL ST	LAWRENCE	GAS STATION	2
ARCHER'S MOBIL # 01-787	500 KING ST	LITTLETON	GAS STATION	5
DCM ENTERPRISES INC	25 KING ST	LITTLETON	GAS STATION	3
LITTLETON CITGO	256 AYER RD	LITTLETON	GAS STATION	3
MILLER AUTO SERVICES	2 HARVARD ST	LITTLETON	GAS STATION	1
SHELL SERVICE STATION #137781	460 KING ST	LITTLETON	GAS STATION	3
TMC LEASING LLC	80 AYER RD	LITTLETON	INDUSTRIAL	2

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
TOWN OF LITTLETON	39 AYER RD	LITTLETON	MUNICIPAL	3
VERYFINE PRODUCTS INC	20 HARVARD RD	LITTLETON	INDUSTRIAL	3
ADVANCED AUTO PERFORMANCE	479 BROADWAY ST	LOWELL	GAS STATION	2
AMES CORPORATION	121 CHURCH ST	LOWELL	OTHER	1
BRIDGE STREET SUNOCO	356 BRIDGE ST	LOWELL	GAS STATION	3
GASOLINE MERCHANTS INC	297 BROADWAY ST	LOWELL	GAS STATION	4
GEORGE MACHERAS	66 BROADWAY ST	LOWELL	OTHER	1
GETTY STATION #30618	801 LAKEVIEW AVE	LOWELL	GAS STATION	2
GORHAM STREET SUNOCO	380 GORHAM ST	LOWELL	GAS STATION	3
HAFFNER'S	1150 BRIDGE ST	LOWELL	GAS STATION	7
HAFFNER'S	215 DUTTON ST	LOWELL	GAS STATION	6
HAFFNER'S	189 APPLETON ST	LOWELL	GAS STATION	4
HESS 21322	558 PAWTUCKET ST	LOWELL	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
HESS 21509	300 MERRIMACK ST	LOWELL	GAS STATION	3
IDEAL TAPE COMPANY	1400 MIDDLESEX ST	LOWELL	INDUSTRIAL	3
KAZANJIAN ENTERPRISE	1460 MIDDLESEX ST	LOWELL	GAS STATION	5
KINNEY'S TEXACO SERVICE INC	262 PAWTUCKET ST	LOWELL	GAS STATION	3
LOWELL GENERAL HOSPITAL	295 VARNUM AVE	LOWELL	HOSPITAL	2
LOWELL REGIONAL WATER UTILITY	815 PAWTUCKET BLVD	LOWELL	MUNICIPAL	2
MOUJAES INC C&J MOBIL	443 BRIDGE ST	LOWELL	GAS STATION	4
MULDOON BROTHERS INC	498 BROADWAY ST	LOWELL	GAS STATION	2
PETE AND RAY AUTO REPAIR INC	472 PRINCETON BLVD	LOWELL	GAS STATION	3
RAY MARCHAND OIL / AUTO	493 PRINCETON BLVD	LOWELL	GAS STATION	4
ROD'S AUTO CARE	626 ROGERS ST	LOWELL	GAS STATION	3
SUNOCO	711 ROGERS ST	LOWELL	GAS STATION	4
TONY'S FILLING STATION INC	51 MAMMOTH RD	LOWELL	GAS STATION	2

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
UNIVERSITY OF LOWELL	SOUTH CAMPUS	LOWELL	OTHER	1
UNIVERSITY OF LOWELL NORTH CAMPUS	NEW (1989) DORMITORY	LOWELL	OTHER	1
US POSTAL SERVICE LOWELL MAINT	44 POST OFFICE SQ	LOWELL	FEDERAL / NON-MILITARY	1
USA PETROLEUM CORP	780 ROGERS ST	LOWELL	GAS STATION	3
GETTY STATION	245 HAVERHILL ST	METHUEN	GAS STATION	3
HAFFNERS SERVICE STATION	224 LOWELL ST	METHUEN	GAS STATION	3
METHUEN COASTAL	460 LOWELL ST	METHUEN	GAS STATION	3
MOBIL	214 HAVERHILL ST	METHUEN	GAS STATION	4
SHELL SERVICE STATION	138 HAVERHILL ST	METHUEN	GAS STATION	
CRANE RENTAL CO INC	205 OLD MAIN ST	TEWKSBURY	OTHER	2
MOBIL #01-JFA	2 MAIN ST	TEWKSBURY	GAS STATION	6
MOBIL #01-PRJ	940 ANDOVER ST	TEWKSBURY	GAS STATION	5
TEXACO SERVICE	1 MAIN ST	TEWKSBURY	GAS STATION	4

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
BROWNING-FERRIS IND OF MASS INC	385 DUNSTABLE RD	TYNGSBORO	TRUCK/TRANSPORT	2
EXXONMOBIL OIL CORPORATION	95-97 WESTFORD RD	TYNGSBORO	GAS STATION	3
MIDDLESEX TEXACO	397 MIDDLESEX RD	TYNGSBORO	GAS STATION	2
RT-3 GAS INC	257 MIDDLESEX RD	TYNGSBORO	GAS STATION	4
STATELINE TOWN & COUNTRY	54 PAWTUCKET BLVD	TYNGSBORO	GAS STATION	2
TOWN & COUNTRY	54 PAWTUCKET BLVD	TYNGSBOROUGH	GAS STATION	2
TOWN OF TYNGSBORO HIGHWAY DEPT	89 KENDALL RD	TYNGSBORO	MUNICIPAL	2
COOK OIL CO INC	23 FORGE VILLAGE RD	WESTFORD	OTHER	1
CUMBERLAND FARMS #2408	158-180 LITTLETON RD	WESTFORD	GAS STATION	4
GETTY STATION #30562	1 OAK HILL RD	WESTFORD	GAS STATION	2
GETTY STATION #30633	262 GROTON RD	WESTFORD	GAS STATION	2
MOBIL #361	185 LITTLETON RD	WESTFORD	GAS STATION	4
ROBERT M HICKS INC	124 MAIN ST	WESTFORD	CONTRACTOR	1

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
WESTFORD CITGO	169 PLAIN RD	WESTFORD	GAS STATION	3
WESTFORD TIRE & AUTO	215 GROTON RD	WESTFORD	GAS STATION	4

For More Information On Underground Storage Tanks, Visit The Massachusetts Department Of Fire Services Web Site:
<http://www.state.ma.us/dfs/ust/usthome.htm>

Note: This Appendix Includes Only Those Facilities Within The Water Supply Protection Area(s) That Meet State Reporting Requirements And Report To The Appropriate Agencies. Additional Facilities Located Within The Water Supply Protection Area(s) Should Be Considered In Local Drinking Water Source Protection Planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Lawrence Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Status
3-0003072	309 Lowell St	Andover	Tier 2
3-0003339	Lovejoy Rd	Andover	Tier 2
2-0000026	1425 Massachusetts Ave	Boxborough	Tier 1b
3-0000049	11 School St	Chelmsford	Def Tier 1b
3-0019820	5 Drumhill Rd	Chelmsford	Tier 2
3-0000496	1095 Lakeview Ave	Dracut	Tier 2
3-0001069	Broadway Rd	Dracut	Def Tier 1b
3-0002400	25 Victory Ln	Dracut	Tier 2
3-0003492	1507 Lakeview Ave	Dracut	Tier 2
3-0004645	91 Mill St	Dracut	Tier 2

RTN	Release Site Address	Town	Status
3-0004651	2060 Bridge St	Dracut	Def Tier 1b
2-0000223	37 Gilson Rd	Groton	Tier 1b
3-0003568	North Of Andover And Everett	Lawrence	Tier 2
3-0019584	703 Haverhill St	Lawrence	Tier 2
3-0020482	18 Ballard Rd	Lawrence	Tier 2
2-0012568	256 Ayer Rd	Littleton	Tier 1c
2-0014006	Taylor St	Littleton	Tier 1c
3-0000041	200 Market St	Lowell	Tier 2
3-0000347	1 Kyan St	Lowell	Tier 2
3-0000351	161 Phoenix Ave	Lowell	Tier 2
3-0000355	Broadway Dummer St	Lowell	Def Tier 1b
3-0000535	Aiken Ave Perkins St	Lowell	Tier 2
3-0000852	43 Lakeview Ave	Lowell	Def Tier 1b
3-0001052	150 Phoenix Ave	Lowell	Tier 2
3-0001056	Varnum Ave	Lowell	Def Tier 1b
3-0001328	356 Bridge St	Lowell	Tier 2
3-0001620	66 Broadway	Lowell	Tier 2
3-0001954	1682-1700 Middlesex St	Lowell	Tier 2
3-0001975	70 French Amory St	Lowell	Def Tier 1b
3-0002044	1465 Middlesex St	Lowell	Def Tier 1b
3-0002544	1 University Ave	Lowell	Tier 2
3-0002609	262 Pawtucket St	Lowell	Tier 2
3-0002629	774 Dutton St	Lowell	Def Tier 1b
3-0002756	224 Walker St	Lowell	Def Tier 1b
3-0004509	253 Merrimack St	Lowell	Tier 1c
3-0004561	2461 Market St	Lowell	Def Tier 1b
3-0004664	205 Church St	Lowell	Def Tier 1b
3-0011528	Westford St	Lowell	Def Tier 1b
3-0013603	262 Pawtucket St	Lowell	Tier 2

RTN	Release Site Address	Town	Status
3-0014250	Pevey St @ Arlene St	Lowell	Def Tier 1b
3-0014974	780 Rogers St	Lowell	Tier 2
3-0017036	180 Church St	Lowell	Tier 2
3-0017559	290 Westford St	Lowell	Tier 2
3-0017804	479 Broadway	Lowell	Tier 2
3-0018004	50 Arcand Dr	Lowell	Def Tier 1b
3-0018128	219 East Merrimac St	Lowell	Tier 2
3-0018153	498 Broadway	Lowell	Tier 2
3-0019949	10 Technology Dr	Lowell	Tier 2
3-0004504	21 Haverhill St	Methuen	Tier 2
3-0015073	245 Haverhill St	Methuen	Tier 2
3-0016515	1101 Riverside Dr	Methuen	Tier 2
3-0000439	400 Main St Rte 38	Tewksbury	Tier 1b
3-0000810	2 Main St	Tewksbury	Tier 2
3-0001162	450 Clark Rd	Tewksbury	Tier 2
3-0001717	365 Main St	Tewksbury	Tier 2
3-0002516	1 Main St	Tewksbury	Tier 2
3-0003181	940 Andover St	Tewksbury	Tier 2
3-0012734	Main St And Clark Rd	Tewksbury	Def Tier 1b
2-0000136	475-530 Dunstable Rd	Tyngsborough	Tier 1a
2-0000392	292 Middlesex Rd	Tyngsborough	Def Tier 1b
2-0010348	11 12 Waterway Pl	Tyngsborough	Tier 1c
2-0011257	95 97 Westford Rd	Tyngsborough	Tier 2
2-0012727	54 Pawtucket Blvd	Tyngsborough	Tier 1c
2-0013702	95 97 Westford Rd	Tyngsborough	Tier 2
2-0000160	169 Plain Rd	Westford	Tier 1c
2-0000232	10 North Main St	Westford	Tier 2
2-0010019	2 Carl Thompson Rd	Westford	Tier 2
2-0011980	160 Main St	Westford	Tier 2

RTN	Release Site Address	Town	Status
2-0012368	262 Groton Rd	Westford	Tier 2
2-0012528	262 Groton Rd	Westford	Tier 2
2-0013703	169 Plain Rd	Westford	Tier 1c
2-0014121	12 Brookside Rd	Westford	Tier 1c

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Lincoln Water Department

What is SWAP?

The Source Water Assessment and Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Lincoln Water Department
<i>PWS Address</i>	Lewis Street/P.O. Box 6353
<i>City/Town</i>	Lincoln, Massachusetts 01773
<i>PWS ID Number</i>	3157000
<i>Local Contact</i>	Patrick Allen
<i>Phone Number</i>	(781) 259-8997

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

Groundwater Sources

Zone II #: 551	Susceptibility: High
Well Name	Source ID#
Tower Road Well	3157000-01G

Surface Water Sources

Source Name	Susceptibility: Moderate
Flints Pond	3157000-01S

Lincoln Water Department receives its water from Flints Pond and the Tower Road Well. Tower Road Well is located towards the southwest section of the town and is used mainly during peak water usage in the summer. The surface water source is located towards the northwest section of the town.

The well has a Zone I radius of 400 feet, and is located in aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The system water is filtered, chlorinated for disinfection, fluoridated for dental health, and pH adjusted for corrosion control. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

Lincoln's watershed and Zone II lands are primarily a mixture of forest, cropland, and residential land use, with smaller portions consisting of commercial land uses, and other land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

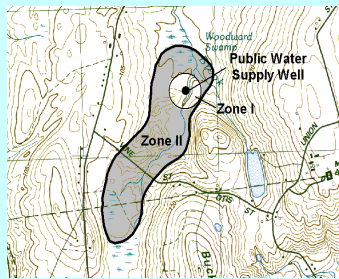
1. Activities in Zone A
2. Residential Land Uses
3. Transportation Corridors
4. Aquatic Wildlife
5. Oil or Hazardous Material Contamination Sites
6. Comprehensive Wellhead Protection Planning

The ranking of susceptibility to contamination for the Tower Road Well Zone II is high, based on the presence of at least one high threat land use within the water supply protection area, as seen in Table 2. The ranking of susceptibility to contamination for the Flints Pond Zone C is moderate, based on the presence of at least one moderate threat land use within the water supply protection area, as seen in Table 2.

1. Activities in Zone As - Land use activities within Lincoln's Zone A which, if managed improperly, may have an impact on surface water sources include: residential storage of heating oil; local roads; stormwater runoff; and grounds activities at DeCordova Museum. Wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.
- ✓ Continue to work with the DeCordova Museum in managing erosion and access in the Zone A.

2. Residential Land Uses – Approximately 20% of the Lincoln's combined Zone II and watershed lands consist of residential areas. On-site septic systems are used in both water supply protection areas. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.

3. Transportation Corridors - State and local roads are common in water supply protection areas. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include contaminants from automotive leaks, maintenance, washing, or accidents.

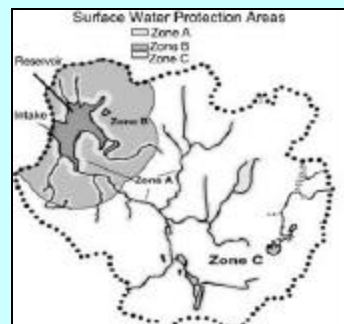
Railroad tracks run through the Zone II. Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals.

Transportation Corridor Recommendations:

- ✓ Regularly inspect watershed and Zone II for illegal dumping and spills.

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Promote BMPs for stormwater management and pollution controls.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

4. Aquatic Wildlife – Birds, particularly geese, are attracted to large open bodies of water. Birds may increase coliform levels through the release of fecal matter into the water and may carry other bacteria and viruses. Beaver and muskrat may introduce the pathogens Giardia and Cryptosporidium into water through fecal matter. Because of their constant contact with the water, these aquatic mammals represent a potential threat to drinking water reservoirs. Appendix A contains a DEP fact sheet titled *What You Need To Know About Microbial Contamination*.

Aquatic Wildlife Recommendations:

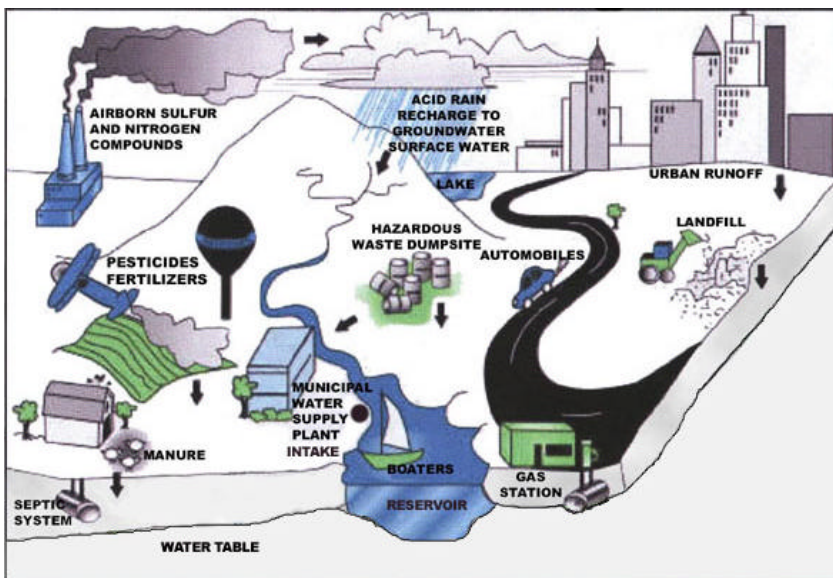
- ✓ Monitor wildlife populations in and around reservoirs.
- ✓ Where necessary, discourage and control aquatic wildlife. See <http://mass.gov/dep/brp/dws/protect.htm> for guidance and permits.

5. Presence of Oil or Hazardous Material Contamination Site – The Flints Pond Zone C contains a MADEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 3-0011522. Refer to the attached map and Appendix C for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known contamination site.

6. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir. Currently, the Town does not have water supply protection controls that have been approved as meeting DEP's Wellhead Protection regulations 310 CMR 22.21(2) or Surface Water Protection regulations 310 CMR 22.20 (b) and (c). Wellhead Protection and Surface Water Supply Protection Plans coordinate community efforts, identify protection strategies, establish a timeframe for implementation, and provide a forum for public participation. There are resources available to help communities develop plans for protecting drinking water supply sources.



MODIFIED FROM © 2000 The Groundwater Foundation. Illustrated by C. Mansfield, The Groundwater Foundation

Figure 1: Sample watershed with examples of potential sources of contamination

Protection Planning Recommendations:

- ✓ Develop and implement Surface Water Supply and Wellhead Protection Plans. Refer your protection team to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance on developing plans.
- ✓ If your local surface water supply protection controls do not meet the current regulations, coordinate efforts with local officials to adopt local water supply protection controls that meet current MA regulations 310 CMR 22.21(2) and 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Water Supply Protection Areas

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II Number	Watershed Source ID	Potential Contaminant Sources*
Commercial					
Service Stations/ Auto Repair Shops	1	H	551	-	Spills, leaks, or improper handling of automotive fluids, and solvents
Railroad Tracks and Yards	1	H	551	-	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Residential					
Fuel Oil Storage (at residences)	Numerous	M	551	01S	Fuel oil: spills, leaks, or improper handling
Lawn Care / Gardening	Numerous	M	551	01S	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Numerous	M	551	01S	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous					
Aquatic Wildlife	Numerous	L	-	01S	Microbial contaminants
Oil or Hazardous Material Sites	1	--	-	01S	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	1	M	551	-	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Transportation Corridors	1	M	551	01S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	1	H	551	-	Spills, leaks, or improper handling of stored materials

Table Notes:

- When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
- For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
- For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

- THREAT RANKING** - Where there are two rankings, the first is for surface water, the second for groundwater sources. The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the watershed and Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination.

Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone II and watershed contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Daily watershed patrols by the conservation commission.
- Discouraging geese and other birds from landing or roosting on the reservoir through the use of noise makers, visual objects, and habitat modification;
- Restricting access to the shoreline at Flints Pond by redirecting some trails, and closing others.

Source Protection Recommendations:

To better protect the sources for the future:

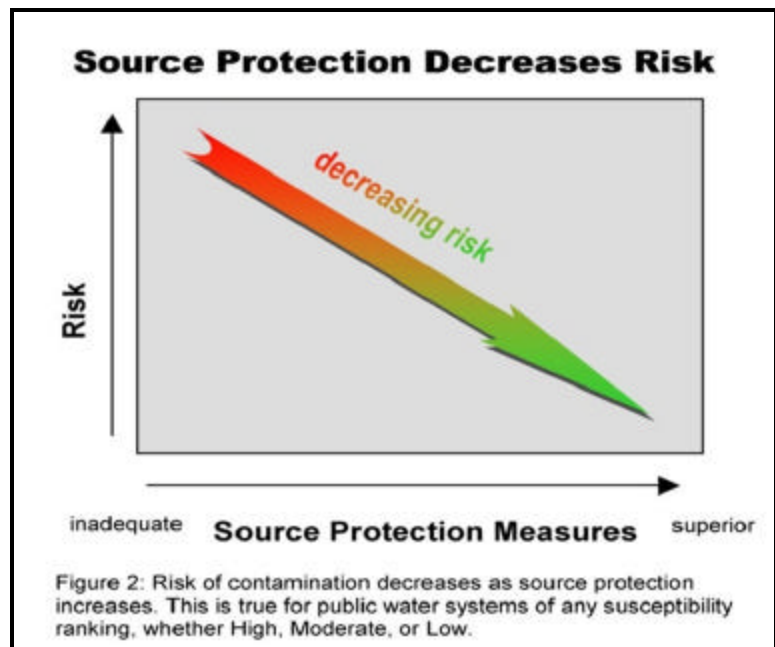
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Inspect the Zone I and A regularly, and when feasible, remove any non-water supply activities.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Develop and implement a Wellhead and Surface Water Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

Top 5 Reasons to Develop a Local Wellhead and Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.



DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watershed and Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with the watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow to the Zone II .
2. The groundwater in this area probably discharges to surface water feature such as a river rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I and Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and/or Zone A?	YES (Zone I for Tower Road Well)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Zone A for Flints Pond)	To the extent possible, remove prohibited activities in Zone A to comply with DEP’s Zone A requirements. Investigate options for gaining ownership or control of the Zone A.
Are the Zone I and Zone A posted with “Public Drinking Water Supply” Signs?	YES (Zone A for FlintsPond)	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
	NO (Zone I for Tower Road Well)	
Are the Zone I and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply -related activities the only activities within the Zone I and Zone A?	YES (Zone I for Tower Road Well)	Monitor for any non-water supply activities in Zone I , and investigate options for removing these activities.
	NO (Zone A for Flints Pond)	Monitor prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2) ?	NO	Working with the Planning Board and the Board of Selectmen to adopt land use controls that they meet current requirements of 310 CMR 22.21(2) and 310 CMR 22.20C. Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	N/A	
Planning		
Does the PWS have a local surface water and wellhead protection plan?	NO	Develop and implement a surface water supply and wellhead protection plan. Follow “Developing a Local Wellhead Protection Plan” and Developing a Local Surface Water Supply Protection Plan” available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal “Emergency Response Plan” to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed and wellhead protection committee?	NO	Establish a committee with representatives from citizens’ groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Floor drain inspection was conducted in conjunction with DEP. For more guidance see “Hazardous Materials Management: A Community's Guide” at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	YES	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II and watershed.

APPENDIX B: DEP PERMITTED FACILITIES WITHIN LINCOLN WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
135839	Doherty's Garage Inc.	161 Lincoln Road	Lincoln	Fuel Dispenser	Fuel Dispenser
246226	Lincoln Woods Cooperative Housing	50 Wells Road	Lincoln	Groundwater Discharge	Groundwater Minor

UNDERGROUND STORAGE TANKS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
Doherty's Garage Inc.	161 Lincoln Rd	Lincoln	Gas Station	15000	Gasoline

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Lincoln Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0011522	Sandy Pond Road	Lincoln	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Lowell Regional Water Utility

What is SWAP?

The Source Water Assessment and Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Lowell Regional Water Utility
<i>PWS Address</i>	815 Pawtucket Blvd.
<i>City/Town</i>	Lowell, MA 01854
<i>PWS ID Number</i>	3160000
<i>Local Contact</i>	Edmund Tarmey, Executive Director
<i>Phone Number</i>	978-970-4242

Introduction

We are all concerned about the quality of the water we drink. Public wells, reservoirs and rivers may be threatened by potential contaminant sources, including storm runoff, spills, and improper disposal of hazardous materials. Citizens, businesses and local officials can work together to better protect these drinking water sources.

Purpose of this report:

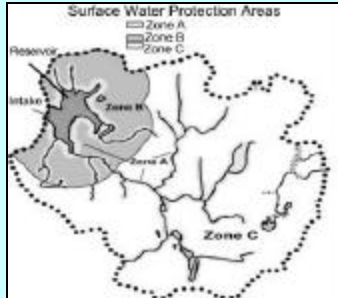
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

This report includes the following sections:

1. Description of the Water System
2. Land Uses in the Watershed
3. Source Water Protection
4. Emergency Planning Recommendations
5. Additional Resources Available for Source Water Protection
6. Appendices

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Section 1: Description of the Water System

<i>Source Name</i>	<i>Source ID</i>	<i>Susceptibility</i>
Merrimack River	3160000-01S	High

The Lowell Regional Water Utility withdraws water from the Merrimack River to supply drinking water to the communities of Lowell, Dracut, Tyngsboro, Tewksbury, and Chelmsford. The Massachusetts Surface Water Quality Standards classify the Merrimack River as a Class B waterway. That means that the water withdrawn for drinking water purposes must be treated. The intake is located west of the City and is pumped one half mile to the treatment plant. The Lowell Regional Water Utility received a grant of \$11.6 million from the Massachusetts Department of Environmental Protection (DEP) to upgrade chemical and filtering equipment and incorporate state of the art computer technology to improve water treatment capability. This work has been completed.

For current information on monitoring results and treatment or for a copy of the most recent Consumer Confidence Report, please contact the public water system contact person listed above in Table 1. Drinking water monitoring data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Merrimack River Watershed

The Merrimack River flows for 78 miles through New Hampshire and for another 50 miles in Massachusetts, from Lowell to Newburyport and into the Atlantic Ocean. There are 1,200 square miles of watershed in Massachusetts in all or part of 24 communities. Upstream of the Lowell drinking water intake, the following communities are in the Merrimack River watershed: Lowell; Chelmsford; Dracut; Tyngsboro; Westford; Groton; Dunstable; Ayer; Ashby; and Ashburnham.

Eighteen percent (18%) of the watershed in Massachusetts upstream of the Lowell intake is listed in DEP's Geographic Information System (GIS) databases as protected open space. The other 82% contains a mix of land uses such as residential homes, shopping malls, businesses, industrial processes, transportation corridors, agriculture, utility lines and recreation facilities.

Class B Drinking Water Sources

There are twelve Class B drinking water sources on rivers in Massachusetts, eleven in the urbanized northeast and one in the western part of the State. Five of these sources are located on the Merrimack River. The large watersheds and historically urbanized land uses associated with major rivers makes source protection a challenge at the Class B sources.

Class B River Intakes

Class B water sources do not have Zone A, B and C protection areas as the Class A sources do. For the purposes of this report, an "Emergency Planning Zone" has been delineated. The **Emergency Planning Zone** is the land area within 400 feet of both sides of the river including all tributary streams and surface water bodies.

A Class B water body source such as the Merrimack River does not have Zone A, B and C protection areas, as do Class A water body sources. For the purposes of the SWAP assessments, a 400 foot setback area along the river and all feeder streams has been delineated for Class B water body sources that is referred to as an "Emergency Planning Zone". Land uses and activities within this zone are of particular concern for source protection and emergency planning because of their proximity to the water supply.

River drinking water sources are particularly susceptible to spills and accidental releases from public and private discharges; accidents related to vehicles, railroads, airports, boats; utility easements; fixed site releases at industrial and public facilities; inappropriate use of pesticides and fertilizers; improper disposal of hazardous household waste; and illegal dumping of a variety of substances.

This assessment has been conducted on the watershed area upstream of the Lowell Regional Water Utility intake to the state boundary. Potential threats that have been identified in New Hampshire have also been included. In addition, DEP has delineated a 400-foot emergency planning zone (shown on the GIS map that accompanies this report) adjacent to the river and its tributaries, up to the state boundary, for the purpose of this assessment.

This report contains a list of regulated facilities that are located within the watershed. Page 9 of this report contains recommendations for emergency planning.

Section 2: Land Uses in the Protection Areas

The protection area for Lowell is a mixture primarily of residential, commercial, industrial, and forest land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues Include:

1. Activities in Emergency Planning Zone
2. Agricultural Activities
3. Hazardous Materials Manufacture, Storage and Use
4. Transportation Corridors
5. Stormwater Flows
6. Railroad Tracks
7. Transmission Lines
8. Combined Sewer Overflows
9. Recreation (beaches, campgrounds, boating)
10. Golf Courses

11. Road and Maintenance Depots
12. Federal Superfund Site and Oil or Hazardous Material Contamination Sites
13. Residential

1. Activities in Emergency Planning Zone - The Emergency Planning Zone is a 400 foot setback on either side of river and all tributaries to a Class B river intake. Land use activities within an Emergency Planning Zone may have an impact on surface water sources. Wild animals and domestic pet wastes can carry waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. while septic systems and road runoff can carry these as well as other contaminants.

Emergency Planning Zone Recommendations:

Work with communities within the combined watersheds to:

- ✓ Continue your efforts to protect these areas and to monitor and review activities within the Emergency Planning Zone for the Merrimack River.

2. Agricultural Activities – Agricultural land uses, cropland and pastures, comprise about 7% of the combined watersheds. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, underground and aboveground storage tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills. Agricultural activities can also be a potential source of microbial contamination from improper manure management.

Agricultural Recommendations:

Work with communities within the combined watersheds to:

- ✓ Work with farmers to make them aware of the water supply and to encourage the use of a U.S. Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.

What are BMPs?

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

- ✓ The Massachusetts Department of Food & Agriculture's booklet titled "On-Farm Strategies to Protect Water Quality - An Assessment & Planning Tool for Best Management Practices" (December 1996) describes technical and financial assistance programs related to the control of erosion and to the management of nutrients, pests, manure, grazing and irrigation.
- ✓ Work with farmers to ensure that pesticides, fertilizers and manure are being stored within a structure designed to prevent runoff.

3. Chemical and Hazardous Materials Manufacture, Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in USTs/ASTs. Although many facilities within the watershed use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure "Industrial Floor Drains" for more information.
- ✓ Monitor water quality in the Merrimack River.
- ✓ Continue to plan and prepare for spills by communicating with facilities and conducting drills.

4. Transportation Corridors - Route 3 and other paved and unpaved local roads and highways cross through the watershed. Spills from vehicular accidents are a major concern.

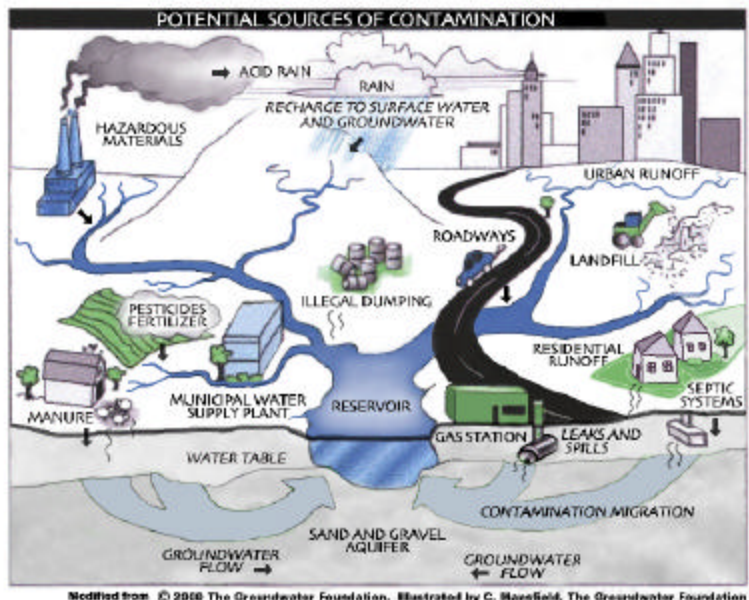


Figure 1: Sample watershed with examples of potential sources of

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Uses in the Watershed

For more information, refer to Appendix B: Regulated Facilities.

Land Uses	Quantity	Threat	Potential Sources of Contamination*
Agricultural			
Fertilizer Storage or Use	Few	M	Leaks, spills, improper handling, or over-application of fertilizers
Pesticide Storage or Use	Few	H	Leaks, spills, improper handling, or over-application of pesticides
Commercial			
Body Shops	2	H	Improper management of vehicle paints, solvents, and primer products
Gas Stations	6	H	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	4	H	Spills, leaks, or improper handling of automotive fluids, and solvents
Bus and Truck Terminals	2	H	Spills, leaks, or improper handling of fuels and maintenance chemicals
Cemeteries	Few	M	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Dry Cleaners	1	H	Spills, leaks, or improper handling of solvents and wastes
Furniture Stripping and Refinishing	1	H	Spills, leaks, or improper handling of hazardous chemicals
Golf Courses	3	M	Over-application or improper handling of fertilizers or pesticides
Printer and Blueprint Shops	1	M	Spills, leaks, or improper handling or storage of printing inks and chemicals
Railroad Tracks and Yards	2	H	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Sand and Gravel Mining/ Washing	Few	M	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial			
Chemical Storage or Manufacture	Numerous	H	Spills, leaks, or improper handling or storage of chemicals or process waste
Hazardous Materials Storage	Numerous	H	Spills, leaks from improper handling or storage of hazardous waste
Industrial Parks	Few	H	Leaks, spills of chemicals from improper handling or storage

Land Uses	Quantity	Threat	Potential Sources of Contamination
Industrial			
Plastic Manufacturers	1	H	Spills, leaks, or improper handling or storage of solvents, resins and process wastes
Residential			
Fuel Oil Storage (at residences)	100+	M	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	100+	M	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	100+	M	Microbial contaminants, improper disposal of hazardous chemicals
Miscellaneous			
Aboveground Storage Tanks	Few	M	Spills, leaks, or improper handling of materials stored in tanks
Combined Sewer Overflows	In New Hampshire	L	Microbial and non-microbial contaminants including industrial wastewater; improper disposal of hazardous wastes
Composting Facilities	2	L	Storage and improper handling of organic material, animal waste, and runoff
Fishing/Boating	100+	L	Fuel and other chemical spills, microbial contaminants
Landfills and Dumps	7	H	Seepage of leachate
NPDES Locations	In New Hampshire	L	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	8	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	Spills, leaks, or improper handling or storage of de-icing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	Few	M	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	6	M	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/Retention Basins	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Superfund Sites	1	H	Spills, leaks, or improper handling or storage of oil or hazardous materials and waste
Transmission Line Rights-of-Way	3	L	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	2	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	23	H	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	17	L	Spills, leaks, or improper handling or storage of hazardous materials and waste

Land Uses	Quantity	Threat	Potential Sources of Contamination
Miscellaneous			
Waste Transfer/Recycling Stations	3	M	Improper management, seepage, and runoff of water contacting waste materials
<p>Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities. For information about Oil or Hazardous Materials Sites, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - Where there are two rankings, the first is for ground water, the second for surface water. The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>			

(Continued from page 4)

In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins. The steep topography of the watershed results in application of de-icing materials to protect public health and safety by keeping the roads passable.

Transportation Corridor Recommendations:

Work with communities within the combined watersheds to:

- ✓ Establish vegetated buffers along roads and parking areas to provide some filtration of contaminants.
- ✓ Encourage regular street sweeping. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.
- ✓ Conduct emergency drills to be ready for spills.
- ✓ Regularly inspect the watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ Work with the City and State to have catch basins inspected, maintained, and cleaned on a regular schedule.

5. Stormwater Flows - Stormwater from roads and commercial development, such as malls in Nashua, New Hampshire, flows directly into the Merrimack River and its tributaries. Stormwater may contain debris, chemicals, bacteria, and nutrients that can impact water quality in the river. Spills can enter the river through stormwater flows.

Stormwater Flows Recommendations:

Work with communities within the combined watersheds to:

- ✓ Encourage parking lot sweeping in commercial areas.
- ✓ Conduct routine testing for bacteria in the river after storms.
- ✓ Continue to plan and prepare for spills.
- ✓ If storm drainage maps are available, review the maps with emergency response teams.

6. Railroad Rights-of-Way - Railroad tracks are located along the bank of the Merrimack River. Railroad Rights-of-Way are potential sources of contamination because of the possibility of spills of transported materials, chemical releases during track maintenance or the over-application or improper handling of herbicides during rights-of-way maintenance.

The Rights-of-Way Management Regulations (333 CMR 11.00) were designed to minimize any potential harmful effects of herbicides used for vegetation control along Rights-of-Way in Massachusetts. The regulations promote the use of an integrated pest management (IPM) approach to vegetation control and require application setback distances to protect drinking water sources and other environmentally sensitive areas. Utilities must submit a Vegetation Management Plan (VMP) and a Yearly Operating Plan (YOP) to the Mass. Department of Food and Agriculture for approval and to the municipalities within which herbicide application is proposed.

Railroad Rights-of-Way Recommendations:

Work with communities within the combined watersheds to:

- ✓ Review the utility’s YOP to ensure that BMPs for herbicide applications are in place.
- ✓ Plan for spills and conduct emergency response drills to test procedures.

7. Transmission (Utility) Lines - Transmission lines run throughout the watershed. These are potential sources of contamination because of the possibility of over-application or improper handling of herbicides during rights-of-way maintenance.

Transmission (Utility) Lines Recommendation:

Work with communities within the combined watersheds to:

- ✓ Monitor the YOP for pesticide applications.

8. Combined Sewer Overflows (CSOs) - Overflows from the Nashua, New Hampshire sewer system have the potential to cause microbial and non-microbial contaminants to enter the river during high stormwater flows.

Combined Sewer Overflows Recommendation:

Work with communities within the combined watersheds to:

- ✓ Continue working with existing committees and legislators on CSOs.

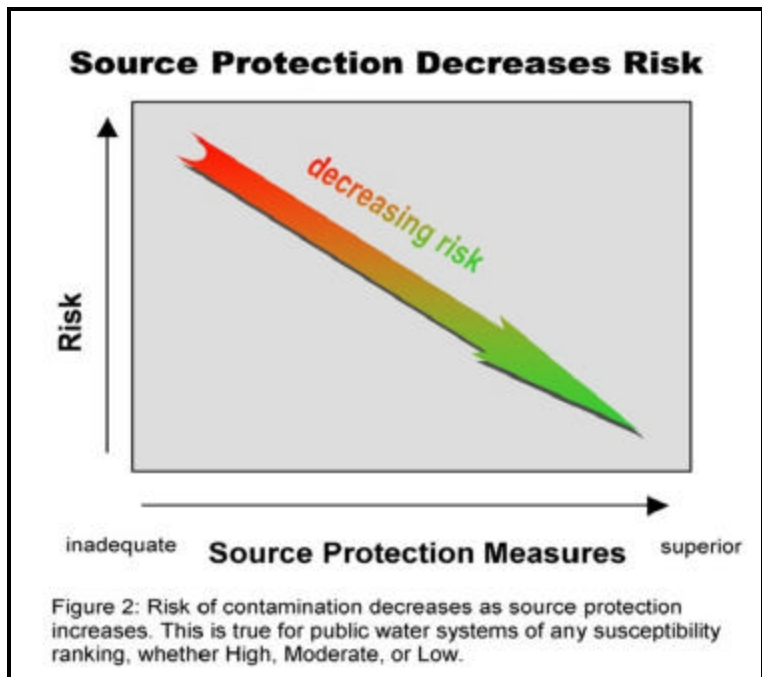
9. Recreation (beaches, campgrounds, boating) - the Merrimack River is a popular regional water resource and is used extensively for boating and fishing. Other recreational uses include beaches and campgrounds along the shoreline.

Recreation Recommendations:

Work with communities within the combined watersheds to:

- ✓ Post water supply awareness signs along the banks of the river, at access points, and at the Lowell Regional Water Utility river intake.
- ✓ Incorporate drinking water protection education into community events.
- ✓ Develop a boater education program that address issues specific to boating and source protection
- ✓ Encourage boaters and other users to report spills.

10. Golf Courses - There are three golf courses within the assessment area. Potential contaminants include the over-application or improper handling of pesticides and fertilizers. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed.



If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Courses Recommendations:

- ✓ Encourage the golf course grounds manager to incorporate an Integrated Pest Management (IPM) approach into their grounds maintenance program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote Best Management Practices (BMPs) for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Contact owners/operators about water supply awareness and protection.

11. Road and Maintenance Depots - Potential sources of contamination in state and municipal facilities can result from accidental dumping, spills, leaks, vehicle washing operations, or from wastewater treatment. Waste management and product storage pose the greatest threats with a wide variety of potentially harmful contaminants.

Road and Maintenance Depots Recommendations:

Work with communities within the combined watersheds to:

- ✓ **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/neeat/muni/index.html>. Encourage road and maintenance depots to develop BMPs to insure proper salt storage, proper maintenance of facilities and good housekeeping practices.
- ✓ Salt pile structures should be adequately sized to allow for the loading and

unloading of salt within the structure. Review the Department of Environmental Protection's Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.

- ✓ Encourage proper storage of materials at these facilities. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.

12. Presence of Federal Superfund Site and Oil or Hazardous Material Contamination Sites – The watershed for the Merrimack River contains a United States Environmental Protection Agency (USEPA) Superfund Site that is associated with the DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 2-0000136. Refer to the attached maps and Appendix B for more information on these sites, and for information on DEP Tier Classified Oil and/or Hazardous Material Release Sites within the watershed for the Merrimack River.

Federal Superfund Site and Oil or Hazardous Material Contamination Sites Recommendation:

Work with communities within the combined watersheds to:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

13. Residential — Over 16% of the assessment area consists of residential land uses. If managed improperly, household hazardous waste, septic systems, lawn care and pet waste can all contribute to ground and surface water contamination. Household hazardous wastes include automotive wastes, paints, solvents and other substances that should be disposed of properly at a municipal collection site. If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Improperly applied fertilizers and pesticides can wash off lawns and into surface waters. Pet waste may contain bacteria, parasites or viruses that are health risks.

- **Septic Systems** - Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Residential Land Use Recommendations:

- ✓ Work with city officials to control residential growth on undeveloped land.
- ✓ See www.state.ma.us/envir/ to obtain information on the build-out analyses for communities into which the watershed extends.
- ✓ Educate residents on how to protect water supplies. Distribute the fact sheet *Residents Protect Drinking Water* available in Appendix A and at www.mass.gov/dep/brp/dws/protect.htm.
- ✓ Post water supply awareness signs on streets throughout the watershed.
- ✓ Work with city boards and upstream communities to review and provide recommendations on proposed watershed development.

Other land uses and activities within the emergency planning zone and watershed that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information

and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection

Current Land Uses and Source Protection:

As with many water systems, this watershed contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The Lowell Regional Water Utility is commended for taking an active role in protecting its drinking water source. Some examples of the staff’s good work include the following:

Emergency Planning and Response - The Utility works with upstream communities in Massachusetts and New Hampshire on emergency response planning. They have an emergency management committee and coordinate activities with the Massachusetts Emergency Management Agency (MEMA) facility in Tewksbury.

Communication with Other Communities - The Utility maintains contact with upstream communities, including those in New Hampshire, on a variety of source protection issues.

Section 4: Emergency Planning Recommendations

Prevention

Public water suppliers with a river source may take preventive measures to protect the source from unexpected releases. Here are some suggestions.

1. Title III (Emergency Planning and Community Right-to-Know) of the Superfund Amendments & Reauthorization Act (SARA) of 1986 required that each community **develop a comprehensive emergency response plan**. Suppliers should review the existing plan to ensure that water supply issues are satisfactorily addressed in the plan, that current response personnel and their correct telephone numbers are listed, and that the entire plan is regularly reviewed and updated by community officials.

The community plan, or a separate water supplier plan, should include copies of policies in the event of spills or releases; regulatory notification requirements such as what size spills are required to be reported, who to call, telephone numbers, and what information is required to be reported; map of intakes, tributaries, watershed boundaries, adjacent public wells, and locations of sites where spills or accidental releases could occur.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

2. **Identify, map and distribute information** to local emergency responders regarding the locations of intakes on the river, tributaries, watershed boundaries, public wells adjacent to river; chemical use at municipal, state, and industrial facilities in watershed (contact Fire Dept., DEP); locations of stormwater drains and the locations of known dams in the event that they can be manipulated by authorized individuals for contaminant control. The Fire Dept., Board of Health, Planning Board, Local Emergency Planning Committee (LEPC), DEP and others may have existing information to help with your work. SARA requires companies to work with the community's LEPC if they handle extremely hazardous chemicals in quantities above established thresholds.
3. **Develop a communication list** of contacts at upstream and downstream facilities, dams, as well as other public water suppliers on, or adjacent to, rivers. Notify owners and operators of these facilities about the location of your intake and request, in writing, that you be notified immediately in the event of a chemical spill or unexpected discharge. Take this opportunity to educate others about water supply protection.
4. **Provide comments** to municipal boards in other cities/towns in the watershed about proposed development, land use controls, Best Management Practices (BMPs) for stormwater flow into tributaries, and other issues to avoid future problems.
5. **Post signs** along major roads in watershed which direct the public to call "911" or another appropriate local number in case of spills. Be aware of accident-prone areas and transport routes of chemicals if possible.
6. **Educate** the public, local officials, Civil Defense, local emergency response team, and others about water supply protection issues. Educate businesses about toxic use reduction.
7. **Conduct household hazardous waste collection days** and establish permanent collection sites, away from sensitive watershed areas, for used batteries, paints, motor oil, etc.
8. **Conduct drills**, in coordination with local/regional response teams, to test policies and procedures and to practice responding to various situations. Including businesses, local officials and staff, Fire Departments, Boards of Health, Civil Defense, school administration, and others in planning and implementing the drills will allow for several town or region-wide concerns to be addressed and tested at the same time, including: issuing health advisories, conducting neighborhood and/or school evacuations, and evaluating the town's communication system (both making responders aware of the emergency and issuing advisories to the public when necessary via television, radio, and other news media), equipment and emergency plan in general.
9. Critique the drills and **modify components** of the emergency response system as needed.

Responding to Emergencies

Drinking water supply professionals responding to local emergencies need to be adequately prepared and trained, and know their roles and responsibilities. Here are some suggestions.

1. **Know regulatory reporting requirements** of state and federal agencies. Know who to call, telephone numbers and what information to report.
2. **Know your role & responsibilities**. Have access to, and be familiar with, the emergency communication list, policies and procedures for emergency response; know when, and how, to safely handle spills or other events until first responders arrive on scene; know what steps to take to avoid drawing contaminants into the water supply system; be familiar enough with local watershed characteristics to provide incident commander with information and advice.
3. **Provide training and materials to responding staff**. Water supply staff, including new employees, should be adequately trained, have access to appropriate materials (storm drain covers, absorbent pads, booms, etc.), up-to-date policies, procedures, and communication lists to perform tasks for which they are responsible.

Follow-up

Steps can be taken to ensure better preparedness in the event of future emergency situations. Here are some suggestions.

1. **Provide follow-up reports** to the public on the resolution of the situation.
2. **Share the information** learned from drills and real situations with others in order to better protect all public drinking water sources.

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in the Key Issues above and Appendix A.

Section 5: Additional Resources Available for Source Water Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Source Protection Grant Program provides funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response (RFR) for the grant program. Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watershed. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Information about DEP Tier Classified Oil or Hazardous Material Release Sites can be obtained at DEP's Bureau of Waste Site Cleanup's web site, www.state.ma.us/dep/bwsc. Sites are identified on the attached GIS map and site specific information is available in Appendix C.

Section 6: Appendices

- A. Protection Recommendations
- B. List of Regulated Facilities (in Massachusetts)
- C. Table of Tier Classified Oil and/or Hazardous Material Sites
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN LOWELL'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
38043	NEW ENGLAND HYDRO TRANS ELECTRIC	RADISSON RD	AYER	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
39155	CHELMSFORD LANDFILL	SWAIN RD	CHELMSFORD	SLF	CHARGEABLE CLOSED LANDFILL
366769	MERRIMACK VALLEY SCREEN PRINTING INC	6 ADAMS ST	CHELMSFORD	DISCH	NON-NOTIFIER IWW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
366857	DUNSTABLE GAS INC	238 PLEASANT ST	DUNSTABLE	FULDSP	FUEL DISPENSER STAGEII
32187	WEST AUTO REPAIR	30 PLEASANT ST	DUNSTABLE	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	FULDSP	FUEL DISPENSER STAGEII
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
39315	GROTON LANDFILL	600 COW POND BROOK RD	GROTON	SLF	CHARGEABLE LANDFILL
363409	GROTON TRANSFER STATION	600 COW POND BROOK RD	GROTON	TRSTN	SMALL HANDLING FACILITY
377537	AGGREGATE INDUSTRIES	80 AYER RD	LITTLETON	TURRPT	LARGE QUANTITY TOXICS USER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
368778	HEWLETT PACKARD CORP	550 KING ST	LITTLETON	GROUND	GROUNDWATER DISCHARGE
229723	MIDDLESEX CONCRETE	80 AYER RD	LITTLETON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
363549	WAKEFIELD MATERIALS CORPORATION LITTLETON	80 AYER RD	LITTLETON	TURRPT	LARGE QUANTITY TOXICS USER
370388	3A GAS	257 MIDDLESEX RD	TYNGSBORO	FULDSP	FUEL DISPENSER
322941	ANDYS AUTO BODY	339 WESTFORD ST	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
348617	BARR ASSOC INC	300 POTASH HILL RD	TYNGSBORO	PLANT	AIR QUALITY PERMIT
320025	BELCASTRO FURNITURE RESTORATION	77 WESTECH DR	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132303	BFI WASTE SYSTEMS OF NORTH AMERICA	385 DUNSTABLE RD	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
132303	BFI WASTE SYSTEMS OF NORTH AMERICA	385 DUNSTABLE RD	TYNGSBORO	DISCH	INDUSTRIAL WASTE WATER SURFACE WATER DISCHARGE
298585	BRITE KLEEN CLEANERS	26 WESTFORD RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32160	COLONIAL AUTO BODY	121 LAKEVIEW AVE	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
110594	DANA WALLBOARD SUPPLY INC	6 CUMMINGS RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
302562	DUFFS GARAGE	92 KENDALL RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
291199	DUNBAR BUS CO	33 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132214	HUSSEY PLASTICS INC	65 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
307332	INDEPENDENT SPRAY	26R WOODLAWN ST	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
368183	MOBIL 12369	95-97 WESTFORD RD	TYNGSBORO	FULDSP	FUEL DISPENSER
324984	MUTUAL OIL	397 MIDDLESEX RD	TYNGSBORO	FULDSP	FUEL DISPENSER
321837	MUTUAL OIL CO INC	397 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
368441	NEW ENGLAND TRANSIT SALES INC	30 PROGRESS AV	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
132833	PICONICS INC	26 CUMMINGS RD	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
853	THUNDERBIRD PLAZA	MIDDLESEX RD	TYNGSBORO	GROUND	GROUNDWATER DISCHARGE
209890	TJ MAXX PLAZA	440 MIDDLESEX RD	TYNGSBORO	GROUND	GROUNDWATER DISCHARGE
230673	TOWN AND COUNTRY GARAGE	54 PAWTUCKET BLVD	TYNGSBORO	FULDSP	FUEL DISPENSER
37104	TYNGSBORO AUTO WORKS	33 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
310633	TYNGSBORO HIGHWAY DEPT	89 KENDELL RD	TYNGSBORO	FULDSP	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
130848	WESTFORD ANODIZING CORP	12 NORTH MAIN ST	WESTFORD	TURRPT	LARGE QUANTITY TOXICS USER
356377	WESTFORD MIDDLE SCHOOL AT STONY BROOK	OFF GROTON RD	WESTFORD	GROUND	GROUNDWATER DISCHARGE

UNDERGROUND STORAGE TANKS WITHIN LOWELL'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
DUNSTABLE GENERAL STORE INC	238 PLEASANT ST	DUNSTABLE	GAS STATION	3
A L PRIME ENERGY	619 BOSTON RD	GROTON	GAS STATION	3
TOWN OF GROTON HIGHWAY DEPT	500 COW POND BROOK RD	GROTON	MUNICIPAL	2
BROWNING-FERRIS IND OF MASS INC	385 DUNSTABLE RD	TYNGSBORO	TRUCK/TRANSPORT	2
EXXONMOBIL OIL CORPORATION	95-97 WESTFORD RD	TYNGSBORO	GAS STATION	2
MIDDLESEX TEXACO	397 MIDDLESEX RD	TYNGSBORO	GAS STATION	2
RT-3 GAS INC	257 MIDDLESEX RD	TYNGSBORO	GAS STATION	4
STATELINE TOWN & COUNTRY	54 PAWTUCKET BLVD	TYNGSBORO	GAS STATION	2
TOWN OF TYNGSBORO HIGHWAY DEPT	89 KENDALL RD	TYNGSBORO	MUNICIPAL	2

For More Information On Underground Storage Tanks, Visit The Massachusetts Department Of Fire Services Web Site: <http://www.state.ma.us/dfs/ust/usthome.htm>
Note: This Appendix Includes Only Those Facilities Within The Water Supply Protection Area(S) That Meet State Reporting Requirements And Report To The Appropriate Agencies.
Additional Facilities Located Within The Water Supply Protection Area(S) Should Be Considered In Local Drinking Water Source Protection Planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Lowell Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Status
2-0000136	475-530 Dunstable Road	Tyngsboro	Tier 1a
2-0000392	292 Middlesex Road	Tyngsboro	Deferred Tier 1b
2-0012727	54 Pawtucket Blvd	Tyngsboro	Tier 1c
2-0010348	11 12 Waterway Pl	Tyngsboro	Tier 1c
2-0011257	95 97 Westford Rd	Tyngsboro	Tier 2
2-0013702	95 97 Westford Rd	Tyngsboro	Tier 2

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Lynn Water and Sewer Commission

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Lynn Water & Sewer Commission
<i>PWS Address</i>	390 Parkland Avenue
<i>City/Town</i>	Lynn, Massachusetts 01905
<i>PWS ID Number</i>	3163000
<i>Local Contact</i>	Richard Dawe – Superintendent
<i>Phone Number</i>	(781) 595-5491

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

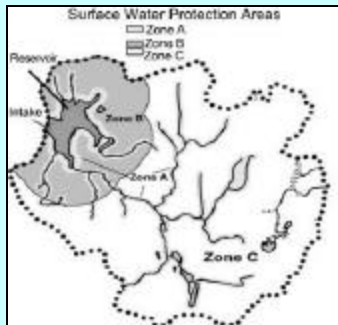
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Emergency Planning Recommendations for Class B River Intakes
4. Source Water Protection
5. Appendices

Section 1: Description of the Water System

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Surface Water Sources

Source Name	Source ID #	Susceptibility
Breeds Pond	3163000-01S	High
Hawkes Pond	3163000-02S	High
Birch Pond	3163000-03S	Moderate
Walden Pond	3163000-04S	Moderate
Ipswich River	3163000-05S	High
Saugus River	3163000-06S	High

The Lynn Water and Sewer Commission (Lynn) maintains and operates six (6) public water supply sources. The reservoirs for Lynn are located within four separate water supply protection areas, with Breeds Pond (3163000-01S) being entirely in Lynn; Hawkes Pond (3163000-02S) being in Lynnfield and Saugus; Birch Pond (3163000-03S) being in Lynn and Saugus; and, Walden Pond (3163000-04S) being in Lynn, Lynnfield, and Saugus. The intake and pump station for the Ipswich River (3163000-05S) is in Lynnfield. The intake and canal for the Saugus River (3163000-06S) is in Lynnfield.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Class B Drinking Water Sources

There are twelve Class B drinking water sources on rivers in Massachusetts, eleven in the urbanized northeast and one in the western part of the State. Three of these sources are located on the Ipswich River, and one is located on the

Saugus River. The large watersheds and historically urbanized land uses associated with major rivers makes source protection a challenge at the Class B sources.

A Class B water body source such as the Ipswich River does not have Zone A, B and C protection areas, as do Class A water body sources. For the purposes of the SWAP assessments, a 400 foot setback area along the river and all feeder streams has been delineated for Class B water body sources that is referred to as an "Emergency Planning Zone". Land uses and activities within this zone are of particular concern for source protection and emergency planning because of their proximity to the water supply.

River drinking water sources are particularly susceptible to spills and accidental releases from public and private discharges; accidents related to vehicles, railroads, airports, boats; utility easements; fixed site releases at industrial and public facilities; inappropriate use of pesticides and fertilizers; improper disposal of hazardous household waste; and illegal dumping of a variety of substances.

This assessment has been conducted on the watershed area upstream of the Lynn intakes. In addition, DEP has delineated a 400-foot emergency planning zone (shown on the GIS map that accompanies this report) adjacent to the river and its tributaries for the purpose of this assessment.

Glossary Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 2: Land Uses in the Protection Areas

The watersheds for the Lynn reservoirs, the Saugus River and the Ipswich River intakes are primarily a mixture of forest and residential use, with a small portion consisting of agricultural, commercial, and industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

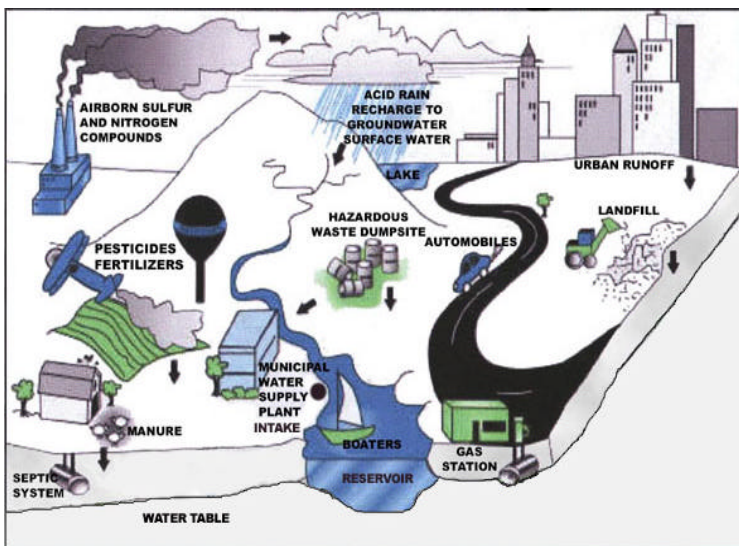
Key Land Uses and Protection Issues include:

1. Activities in Zone A and Emergency Planning Zone
2. Chemical and Hazardous Materials Manufacture, Storage and Use
3. Residential Land Uses
4. Transportation Corridors
5. Road and Maintenance Depots
6. Golf Courses
7. Oil or Hazardous Material Contamination Sites
8. Comprehensive Surface Water Protection Planning

The ranking of susceptibility to contamination for Breeds Pond, Hawkes Pond, the Ipswich River, and the Saugus River is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2. The ranking of susceptibility to contamination for Birch Pond and Walden Pond is moderate, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone A and Emergency Planning Zone - A Zone A for a reservoir includes all areas within 400 feet of the reservoir shore line and within 200 feet of either side of all streams and feeder ponds that flow into the reservoir.

The Emergency Planning Zone is a 400 foot setback on either side of the river and all tributaries to a Class B river intake. Land use activities within a Zone A or Emergency Planning Zone may have an impact on surface water sources. Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and, un-permitted and unauthorized activities. Also, wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.



MODIFIED FROM © 2000 The Groundwater Foundation. Illustrated by C. Mansfield, The Groundwater Foundation

Figure 1: Sample watershed with examples of potential sources of contamination

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Class B River Intakes

Class B water sources do not have Zone A, B and C protection areas as the Class A sources do. For the purposes of this report, an "Emergency Planning Zone" has been delineated. The **Emergency Planning Zone** is the land area within 400 feet of both sides of the river including all tributary streams and surface water bodies.

Zone A Recommendations:

Work with communities within the combined watersheds to:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A and Emergency Planning Zone should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.
- ✓ Identify stormwater drains and the drainage system along transportation corridors. Work to better manage stormwater by pre-treating contaminated stormwater and/or redirecting stormwater outside of the Zone A and Emergency Planning Zone.

- ✓ Continue your efforts to protect these areas and to monitor and review activities within the Zone A and Emergency Planning Zone.

2. Chemical and Hazardous Materials Manufacture, Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (UST)/Aboveground Storage Tanks (AST). Although many facilities within the watershed use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.
- ✓ Continue monitoring water quality in the Ipswich River.
- ✓ Continue to plan and prepare for spills by communicating with municipalities and facilities in the Ipswich River watershed, and by conducting drills.

3. Residential Land Uses – Approximately 50% of the combined watersheds consist of residential areas, of which a large portion is served by private septic systems, with the remainder being served by municipal sewerage. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

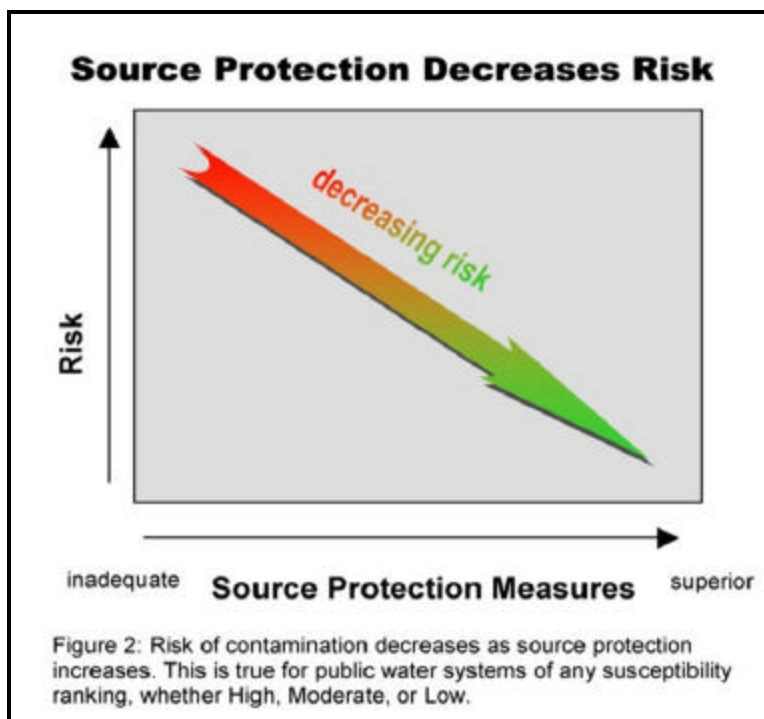
(Continued on page 8)

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity Zone C	Threat	Source ID #	Quantity Ipswich/Saugus Watershed	Potential Contaminant Sources*
Agricultural					
Fertilizer Storage or Use	--	M	05S, 06S	Few	Leaks, spills, improper handling, or over-application of fertilizers
Pesticide Storage or Use	--	H	05S, 06S	Few	Leaks, spills, improper handling, or over-application of pesticides
Commercial					
Body Shops	--	H	05S, 06S	6	Improper management of vehicle paints, solvents, and primer products
Gas Stations	1	H	02S, 05S, 06S	31	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	2	H	02S, 05S, 06S	17	Spills, leaks, or improper handling of automotive fluids and solvents
Bus and Truck Terminals	--	H	05S	5	Spills, leaks, or improper handling of fuels and maintenance chemicals
Cemeteries	1	M	02S, 05S, 06S	Several	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Dry Cleaners	--	H	05S	1	Spills, leaks, or improper handling of solvents and wastes
Golf Courses	1	M	01S, 02S, 05S	4	Over-application or improper handling of fertilizers or pesticides
Medical Facilities	--	M	05S, 06S	6	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes
Photo Processors	--	H	05S	1	Spills, leaks, or improper handling or storage of photographic chemicals
Printer and Blueprint Shops	--	M	05S, 06S	2	Spills, leaks, or improper handling or storage of printing inks and chemicals
Railroad Tracks and Yards	--	H	05S, 06S	Few	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage

Land Uses	Quantity Zone C	Threat	Source ID #	Quantity Ipswich/Saugus Watershed	Potential Contaminant Sources*
Commercial					
Repair Shops (Engine, Appliances, Etc.)	--	H	05S	2	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Sand and Gravel Mining/Washing	--	M	05S	1	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial					
Asphalt, Coal Tar, and Concrete Plants	--	M	05S	1	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Fuel Oil Distributors	1	H	02S, 06S	1	Spills, leaks, or improper handling or storage of fuel oil
Hazardous Materials Storage	--	H	05S	2	Spills, leaks, or improper handling or storage of hazardous materials
Hazardous Waste Storage, Treatment and Recycling	--	H	06S	1	Spills, leaks, or improper handling or storage of hazardous materials
Industry/Industrial Parks	--	H	05S	9	Spills, leaks, or improper handling or storage of industrial chemicals and metals
Residential					
Fuel Oil Storage (at residences)	100+	M	All	100+	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	100+	M	All	100+	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	100+	M	All	100+	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous					
Aboveground Storage Tanks	--	M	06S	5	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	100+	L	All	100+	Microbial contaminants
Large Quantity Hazardous Waste Generators	--	H	05S	3	Spills, leaks, or improper handling or storage of hazardous materials and waste
Landfills and Dumps	1	H	01S	2	Seepage of leachate
Military Facilities (Past And Present) Type: former NIKE Sites	--	H	06S	1	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump sites
NPDES Locations	1	L	01S, 05S	2	Improper disposal of hazardous material and wastes

Land Uses	Quantity Zone C's	Threat	Source ID #	Quantity Ipswich/Saugus Watershed	Potential Contaminant Sources*
Miscellaneous					
Oil or Hazardous Material Sites	2	--	02S, 05S, 06S	44	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	01S, 05S, 06S	3	Spills, leaks, or improper handling or storage of de-icing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	--	M	05S, 06S	Few	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	1	M	02S, 05S, 06S	14	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains	100+	L	01S, 02S, 04S, 05S, 06S	100+	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way	1	L	02S, 05S, 06S	8	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	3	M	02S, 03S, 05S, 06S	Several	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	14	H	01S, 02S, 05S, 06S	119	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	2	L	02S, 05S, 06S	49	Spills, leaks, or improper handling or storage of hazardous materials and waste
Water Treatment Sludge Lagoons	--	M	05S	Few	Improper management of sludge and wastewater
Notes:					
<ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>					

- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

4. Transportation Corridors - Several major transportation corridors and other paved and unpaved local roads cross through the

**When you fertilize the lawn,
Remember
you're not *just* fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

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watersheds. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins. The steep topography of the watershed results in application of de-icing materials to protect public health and safety by keeping the roads passable.

Transportation Corridor Recommendations:

Work with communities within the combined watersheds to:

- ✓ Identify stormwater drains and the drainage system along transportation corridors.
- ✓ Work with the Towns and State to have catch basins inspected, maintained, and cleaned on a regular schedule.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Establish vegetated buffers along roads and parking areas to provide some filtration of contaminants.
- ✓ Encourage regular street sweeping. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.
- ✓ Conduct emergency drills to be ready for spills.
- ✓ Regularly inspect the watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.

5. Road and Maintenance Depots - Potential sources of contamination in state and municipal facilities can result from accidental dumping, spills, leaks, vehicle washing operations, or from wastewater treatment. Waste management and product storage pose the greatest threats with a wide variety of potentially harmful contaminants.

Road and Maintenance Depots Recommendations:

Work with communities within the combined watersheds to:

- ✓ Institute **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to

prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/neeat/muni/index.html>. Encourage road and maintenance depots to develop best management practices to ensure proper salt storage, proper maintenance of facilities and good housekeeping practices.

- ✓ Adequately size salt pile structure to allow for the loading and unloading of salt within the structure. Review the Department of Environmental Protection's Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.
- ✓ Encourage proper storage of materials at these facilities. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.

6. Golf Courses - There are three golf courses within the assessment area. Potential contaminants include the over-application or improper handling of pesticides and fertilizers. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Courses Recommendations:

Work with communities within the combined watersheds to:

- ✓ Encourage the golf course grounds manager to incorporate an Integrated Pest Management (IPM) approach into their grounds maintenance program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote Best Management Practices (BMPs) for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Contact owners/operators about water supply awareness and protection.

7. Presence of Oil or Hazardous Material Contamination Sites – The watersheds for Lynn's reservoirs contain DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 3-0016513. Refer to the attached maps and Appendix C for DEP Tier Classified Oil and/or Hazardous Material Release Sites within the watersheds for the Ipswich River and the Saugus River.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

8. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the City of Lynn is in the process of developing a Watershed Protection Plan; however, the watershed towns do not have water supply protection controls that meet DEP's Surface Water Protection regulations 310 CMR 22.20 (b) and (c). A Surface Water Supply Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply reservoirs.

Protection Planning Recommendations:

Work with communities within the combined watersheds to:

- ✓ Develop a Surface Water Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Surface Water Protection Plan".
- ✓ Encourage watershed towns to adopt controls that meet 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ Continue to work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the towns, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone A?	NO (All but a small portion of Walden Pond Zone A is controlled)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials. To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements.
Is the Zone A/ Emergency Planning Zone posted with "Public Drinking Water Supply" Signs?	YES (Zone A)	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
	NO (Emergency Planning Zone)	The Emergency Planning Zone for the Ipswich River and the Saugus River Watershed is not posted
Is the Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply -related activities the only activities within the Zone A?	NO	Continue monitoring for non-water supply activities in Zone As. Monitor prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20B and 22.20C?	NO	Work with the Planning Board and the City Council to compare land use controls to see that they meet current requirements of 310 CMR 22.20 (B) and 310 CMR 22.20 (C). Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Work with the Towns of Lynnfield and Saugus to include Lynn watersheds in their protection controls.
Planning		
Does the PWS have a local surface water protection plan?	IN PROCESS	Develop a surface water supply protection plan. Follow "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	YES	Enhance the committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES (Fire Department conducts inspections)	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	YES	Continue residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the Zone C.

Other land uses and activities within the Protection areas that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Emergency Planning Recommendations for Class B River Intakes

Prevention

Public water suppliers with a river source may take preventive measures to protect the source from unexpected releases. Here are some suggestions.

1. Title III (Emergency Planning and Community Right-to-Know) of the Superfund Amendments & Reauthorization Act (SARA) of 1986 required that each community **develop a comprehensive emergency response plan**. Suppliers should review the existing plan to ensure that water supply issues

are satisfactorily addressed in the plan, that current response personnel and their correct telephone numbers are listed, and that the entire plan is regularly reviewed and updated by community officials.

The community plan, or a separate water supplier plan, should include copies of policies in the event of spills or releases; regulatory notification requirements such as what size spills are required to be reported, who to call, telephone numbers, and what information is required to be reported; map of intakes, tributaries, watershed boundaries, adjacent public wells, and locations of sites where spills or accidental releases could occur.

2. **Identify, map and distribute information** to local emergency responders regarding the locations of intakes on the river, tributaries, watershed boundaries, public wells adjacent to river; chemical use at municipal, state, and industrial facilities in watershed (contact Fire Dept., DEP); locations of stormwater drains and the locations of known dams in the event that they can be manipulated by authorized individuals for contaminant control.

The Fire Dept., Board of Health, Planning Board, Local Emergency Planning Committee (LEPC), DEP and others may have existing information to help with your work. SARA requires companies to work with the community's LEPC if they handle extremely hazardous chemicals in quantities above established thresholds.

3. **Develop a communication list** of contacts at upstream and downstream facilities, dams, as well as other public water suppliers on, or adjacent to, rivers. Notify owners and operators of these facilities about the location of your intake and request, in writing, that you be notified immediately in the event of a chemical spill or unexpected discharge. Take this opportunity to educate others about water supply protection.
4. **Provide comments** to municipal boards in other cities/towns in the watershed about proposed development, land use controls, Best Management Practices (BMPs) for stormwater flow into tributaries, and other issues to avoid future problems.
5. **Post signs** along major roads in watershed which direct the public to call "911" or other appropriate local number in case of spills. Be aware of accident-prone areas and transport routes of chemicals if possible.
6. **Educate** the public, local officials, Civil Defense, local emergency response team, and others about water supply protection issues. Educate businesses about toxic use reduction.
7. **Conduct household hazardous waste collection days** and establish permanent collection sites, away from sensitive watershed areas, for used batteries, paints, motor oil, etc.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

8. **Conduct drills**, in coordination with local/regional response teams, to test policies and procedures and to practice responding to various situations. Including businesses, local officials and staff, Fire Departments, Boards of Health, Civil Defense, school administration, and others in planning and implementing the drills will allow for several town or region-wide concerns to be addressed and tested at the same time, including: issuing health advisories, conducting neighborhood and/or school evacuations, and evaluating the town's communication system (both making responders aware of the emergency and issuing advisories to the public when necessary via television, radio, and other news media), equipment and emergency plan in general.

9. Critique the drills and **modify components** of the emergency response system as needed.

Responding to Emergencies

Drinking water supply professionals responding to local emergencies need to be adequately prepared and trained, and know their roles and responsibilities. Here are some suggestions.

1. **Know regulatory reporting requirements** of state and federal agencies. Know who to call, telephone numbers and what information to report.
2. **Know your role & responsibilities.** Have access to, and be familiar with, the emergency communication list, policies and procedures for emergency response; know when, and how, to safely handle spills or other events until first responders arrive on scene; know what steps to take to avoid drawing contaminants into the water supply system; be familiar enough with local watershed characteristics to provide incident commander with information and advice.
3. **Provide training and materials to responding staff.** Water supply staff, including new employees, should be adequately trained, have access to appropriate materials (storm drain covers, absorbent pads, booms, etc.), up-to-date policies, procedures, and communication lists to perform tasks for which they are responsible.

Follow-up

Steps can be taken to ensure better preparedness in the event of future emergency situations. Here are some suggestions.

1. **Provide follow-up reports** to the public on the resolution of the situation.
2. **Share the information** learned from drills and real situations with others in order to better protect all public drinking water sources.

Section 4: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Current Land Uses and Source Protection:

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

**When you wash your car in the driveway,
Remember
you're not *just* washing your car in the driveway.**



All the soap, scum, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

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- Daily patrols of the reservoir watersheds
- Identification of storm drains in Zone A of reservoir watersheds
- Control of public access around reservoirs
- Developing an education program for sixth grade school children to learn about source protection
- Open house at treatment plant during Drinking Water Week
- Actively reviewing plan for new activities in watersheds
- Earth Day clean-up of watershed

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Continue to develop and implement a Surface Water Supply Protection Plan.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in watersheds and to cooperate on responding to spills or accidents.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or hazardous materials contamination site.
- ✓ Work cooperatively with Board of Health to develop an inventory of septic systems in Lynnfield and other communities in the Ipswich River and Saugus River watersheds.
- ✓ Work with businesses and others who have landscaped areas in the watersheds to encourage BMPs for the use of fertilizer and pesticide.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Continue to inspect the Zone A areas regularly, and when feasible, remove prohibited non-water supply activities.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection’s Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 5: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP’s Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

**APPENDIX A: DEP PERMITTED FACILITIES WITHIN LYNN WATER SUPPLY PROTECTION AREAS
(INCLUDING IPSWICH RIVER AND SAUGUS RIVER WATERSHEDS)**

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
359025	DIX AUTO BODY	77 ALEXANDER RD	BILLERICA	PLANT	AIR QUALITY PERMIT
295264	BELLS CAMERA & VIDEO	184 CAMBRIDGE ST	BURLINGTON	HANDLR	SMALL QUANTITY GENERATOR OF
32943	NEAT N CLEAN DRY CLEANERS	228 CAMBRIDGE STR	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERAT
320034	SHELL SERVICE STATION	198 CAMBRIDGE ST	BURLINGTON	HANDLR	VERY SMALL QUANTITY GENERAT
246316	LYNN WATER & SEWER COMM	400 PARKLAND AVE	LYNN	FULDSP	FUEL DISPENSER STAGEII
266443	RAYMOND REARDON WATER TREATMENT PLANT	390 PARKLAND AVE	LYNN	FULDSP	FUEL DISPENSER STAGEII
177618	EXXON CO USA 35578	8 BROADWAY RTE 1	LYNNFIELD	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
296749	FLAGSHIP MOTORCARS	385 BROADWAY - RTE 1 NORTH	LYNNFIELD	APPR	INDUSTRIAL WASTE WATER HOLDING TANK
333404	GRAVA PAINTING	3 HEATH CIRCLE	LYNNFIELD	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
108952	JAMIE GRAPHICS	25 PILLINGS POND RD	LYNNFIELD	HANDLR	BELOW HW REGULATED THRESHOLDS

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
343623	KELLY JEEP EAGLE INC.	353 BROADWAY	LYNNFIELD	DISCH	INDUSTRIAL WASTE WATER HOLDING TANK
1002	LYNNFIELD CENTER WATER DISTRICT	83 PHILLIPS RD	LYNNFIELD	SURFAC	SURFACEWATER MINOR
304345	LYNNFIELD DEPARTMENT OF PUBLIC WORKS	55 SUMMER ST	LYNNFIELD	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
304345	LYNNFIELD DEPARTMENT OF PUBLIC WORKS	55 SUMMER ST	LYNNFIELD	FULDSP	FUEL DISPENSER STAGEII
262894	LYNNFIELD PUMP N PANTRY	793 MAIN ST	LYNNFIELD	FULDSP	FUEL DISPENSER STAGEII
367281	MOBIL 13228	596 SALEM ST	LYNNFIELD	FULDSP	FUEL DISPENSER STAGEII
335912	PYBURN OIL INC	1061 SUMMER STREET	LYNNFIELD	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
364428	TOSCO EXXON 2634694	8 BROADWAY	LYNNFIELD	FULDSP	FUEL DISPENSER STAGEII
327742	7 ELEVEN 30238	237 MAIN ST	NORTH READING	FULDSP	FUEL DISPENSER
311762	ADVANCED PHOTO INC	4 LOWELL RD	NORTH READING	HANDLR	SMALL QUANTITY GENERATOR OF
251722	BARD MEDISYSTEMS	87 CONCORD ST	NORTH READING	HANDLR	BELOW HAZARDOUS WASTE REG L

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
300381	BOBCAT OF BOSTON INC	20 CONCORD ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
134192	CAROUSEL CLEANERS	265 MAIN ST	NORTH READING	HANDLR	SMALL QUANTITY GENERATOR OF
29369	CENTRE TRUCKING SERVICES	81 CONCORD ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
34893	CHASE TRANSMISSIONS	90 MAIN ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
315041	COMMONWEALTH OIL INC	290 MAIN ST	NORTH READING	FULDSP	FUEL DISPENSER
135959	DB MART 34	231 MAIN ST	NORTH READING	FULDSP	FUEL DISPENSER
281186	DOUGLAS DESIGN AND CONSTRUCTION	126 MAIN ST UNIT	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
134191	DYAR SALES & MACHINERY CO	75 CONCORD ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
29166	GALLANT ELECTRIC MOTOR SERVICE	206 NORTH ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
35155	HEFFRON MATERIALS	68 WINTER ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
293945	HILLVIEW COUNTRY CLUB	149 NORTH ST	NORTH READING	FULDSP	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
34380	HONDA BARN	260 MAIN ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
31903	JOES SERVICE CENTER	31 MAIN ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
121254	LILY TRUCK LEASING	84 CONCORD ST	NORTH READING	HANDLR	SMALL QUANTITY GENERATOR OF
135961	M&H AUTO SERVICE	1 WASHINGTON ST	NORTH READING	FULDSP	FUEL DISPENSER
33375	MA ONE AUTO BODY	340 MAIN ST RTE 2	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
297362	MEADOWVIEW HEALTHCARE	134 NORTH ST	NORTH READING	GROUND	GROUNDWATER DISCHARGE
341296	MICHAELS AUTOBODY	126 MAIN STREET	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
131087	MSM INDUSTRIES INC	60 CONCORD ST	NORTH READING	HANDLR	SMALL QUANTITY GENERATOR OF
132775	NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
327420	NORTH READING DEPARTMENT	166 CHESTNUT ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
329093	NORTH READING FIRE DEPARTMENT	152 PARK STREET	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
328706	NORTH READING SCHOOL DEPARTMENT	191 PARK STREET	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
327939	NORTH READINGS BEST	144 MAIN ST	NORTH READING	FULDSP	FUEL DISPENSER
312394	NORTH SHORE PRINTING INC	281 MAIN ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
226966	PACETTI CORPORATION	4 HALLBERG PARK	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
31554	PARAMOUNT AUTO CENTER INC	324 MAIN ST	NORTH READING	HANDLR	SMALL QUANTITY GENERATOR OF
887	PARK COLONY CONDOMINIUM TRUST	36-46 MAIN ST	NORTH READING	GROUND	GROUNDWATER DISCHARGE
31861	PAULS NORTH READING AUTO	240 PARK ST	NORTH READING	HANDLR	SMALL QUANTITY GENERATOR OF
178012	QUICK MART NUMBER 30238	237 MAIN ST	NORTH READING	HANDLR	SMALL QUANTITY GENERATOR OF
36091	READING MOWER SERVICE	90 MAIN ST BAY 13	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
132160	RICHARDSONS SERVICE STATION	21 WINTER ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
330270	ROUTE 28 MOTORS EXCHANGE	137 MAIN STREET	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
178106	STAR MARKETS COMPANY INC	265 MAIN ST	NORTH READING	HANDLR	SMALL QUANTITY GENERATOR OF
135981	SUN COMPANY INC	142 MAIN ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
339694	SUNBRIDGE CARE & REHABILITATION	134 NORTH STREET	NORTH READING	GROUND	GROUNDWATER DISCHARGE
38031	SUNOCO SERVICE STATION	146 MAIN ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
321780	TERADYNE	500 RIVER PARK	NORTH READING	TURRPT	LARGE QUANTITY TOXICS USER
33770	THOMAS DAN AUTO BODY INC	209 MAIN ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
38000	VALVOLINE INSTANT OIL CHANGE	216 MAIN ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
319070	VERIZON NEW ENGLAND INC	74 CONCORD ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
333802	WILLIAMS AND PARTNERS	66 CONCORD STREET	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERAT
290209	128 FORD	88-98 WALKER BROO	READING	HANDLR	VERY SMALL QUANTITY GENERAT
325112	BOBS AUTO BODY	9 CHAPIN AVENUE	READING	HANDLR	VERY SMALL QUANTITY GENERAT

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132820	BOSTON STOVE CO	155 JOHN ST	READING	HANDLR	VERY SMALL QUANTITY GENERAT
336800	BROWNS BODY WORK	943 MAIN STREET	READING	HANDLR	VERY SMALL QUANTITY GENERAT
136544	CUMBERLAND FARMS 2124	297-301 SALEM ST	READING	FULDSP	FUEL DISPENSER
308657	CVS #0224	650 MAIN ST	READING	DISCH	MWRA SEWER CONNECTION
317327	DR BART KELLERMAN DPM	161 ASH ST	READING	HANDLR	VERY SMALL QUANTITY GENERAT
177625	EXXON CO USA 35597	136 JOHN ST	READING	HANDLR	VERY SMALL QUANTITY GENERAT
31981	FOREIGN AUTO UNION	15 HIGH ST	READING	HANDLR	VERY SMALL QUANTITY GENERAT
36045	FRAEN CORPORATION	33 WALKERS BROOK	READING	HANDLR	VERY SMALL QUANTITY GENERAT
126531	GETTY 30355	306 MAIN ST	READING	FULDSP	FUEL DISPENSER
117138	INTEGRATECH SOLUTIONS	1 GENERAL WAY	READING	HANDLR	VERY SMALL QUANTITY GENERAT
134320	JIFFY LUBE	369 MAIN ST	READING	HANDLR	VERY SMALL QUANTITY GENERAT

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
205494	MA NATIONAL GUARD	HAVERHILL ST	READING	HANDLR	SMALL QUANTITY GENERATOR OF
299828	MAIN STREET GLOBAL	431 MAIN ST	READING	HANDLR	VERY SMALL QUANTITY GENERAT
37193	MEINEKE DISCOUNT MUFFLERS	117 MAIN ST	READING	HANDLR	SMALL QUANTITY GENERATOR OF
339021	MIDDLESEX ANIMAL HOSPITAL	668 MAIN STREET	READING	HANDLR	VERY SMALL QUANTITY GENERAT
31452	NORTH MAIN ST AUTO BODY	944 MAIN ST	READING	HANDLR	VERY SMALL QUANTITY GENERAT
29786	READING AUTO BODY CLINIC	17-19 HIGH ST	READING	HANDLR	VERY SMALL QUANTITY GENERAT
327627	READING FAMILY CHIROPRACTOR	18-20R WOBURN STR	READING	HANDLR	VERY SMALL QUANTITY GENERAT
32655	READING MUNICIPAL LIGHT DEPARTMENT	218 ASH ST	READING	HANDLR	VERY SMALL QUANTITY GENERAT
135988	READING SQUARE TEXACO	749 MAIN ST	READING	FULDSP	FUEL DISPENSER
5059	READING, TOWN OF	75 NEWCROSSING RD	READING	DISCH	MWRA SEWER CONNECTION
26842	SAFETYLOID RECLAIMING CO	240 ASH ST	READING	HANDLR	TRANSPORTER OF HAZARDOUS WA

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
325694	SHELL 137832	110 MAIN ST	READING	FULDSP	FUEL DISPENSER
132401	SUNOCO 0005 2027	467 MAIN ST	READING	FULDSP	FUEL DISPENSER
38088	SUNOCO SERVICE STATION	467 MAIN ST	READING	HANDLR	VERY SMALL QUANTITY GENERAT
325087	TEXACO 100027	87 WALKERS BROOK	READING	FULDSP	FUEL DISPENSER
32077	VARNEY AUTO BODY	250R ASH ST	READING	HANDLR	VERY SMALL QUANTITY GENERAT
338736	WINCHESTER HOSPITAL	20 POND MEADOW DR	READING	DISCH	MWRA SEWER CONNECTION
35019	WOBURN STREET INC	36 WOBURN ST	READING	HANDLR	VERY SMALL QUANTITY GENERAT
36420	WOMENS IMAGING RESOURCES	315 MAIN ST	READING	HANDLR	VERY SMALL QUANTITY GENERAT
32694	MA HIGHWAY SITE 76	9 CAUSEWAY RD	READING	FULDSP	FUEL DISPENSER
209957	SANBORN HILL SERVICE STATION	1462 MAIN ST	READING	FULDSP	FUEL DISPENSER
116231	AGFA CORPORATION	80 INDUSTRIAL WAY	WILMINGTON	DISCH	MWRA SEWER CONNECTION

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
116231	AGFA DIVISION, BAYER DIVISION	80 INDUSTRIAL WAY	WILMINGTON	HANDLR	SMALL QUANTITY GENERATOR OF
131268	AMETEK AEROSPACE PRODUCTS, INC.	50 FORDHAM RD	WILMINGTON	PLANT	AIR QUALITY PERMIT
131268	AMETEK AEROSPACE PRODUCTS, INC.	50 FORDHAM RD	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
131268	AMETEK AEROSPACE PRODUCTS, INC.	50 FORDHAM RD	WILMINGTON	TURA REPORTER	BELOW TOXICS USE REDUCTION REG LEVELS
131259	ANALOG DEVICES INC	804 WOBURN ST	WILMINGTON	DISCHARGE	MWRA SEWER CONNECTION
131259	ANALOG DEVICES INC	804 WOBURN ST	WILMINGTON	PLANT	RES APPLICATION APPROVED
131259	ANALOG DEVICES INC	804 WOBURN ST	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
131259	ANALOG DEVICES INC	804 WOBURN ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
114468	ANTONS CLEANERS INC	240 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
293634	CAR MART INC	275 MAIN ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
26009	DUPONT E I DENEMOURS & CO INC	1 CORNELL PL	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
900	DYNAMICS RESEARCH CORPORATION	60 CONCORD ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
900	DYNAMICS RESEARCH CORPORATION	60 CONCORD ST	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
357434	INTELLISENSE CORPORATION	36 JONSPIN RD	WILMINGTON	PLANT	AIR QUALITY PERMIT
131274	KOCH MEMBRANE SYSTEMS INC	850 MAIN ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
131274	KOCH MEMBRANE SYSTEMS INC	850 MAIN ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
131274	KOCH MEMBRANE SYSTEMS INC	850 MAIN ST	WILMINGTON	DISCHARGE	MWRA SEWER CONNECTION
215608	MARTIN MARIETTA CORPORATION	50 FORDHAM RD	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
341505	ROUTE 38 GAS & SERVICE	603 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
134419	SHEA CONCRETE PRODUCTS INC	773 SALEM ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
134419	SHEA CONCRETE PRODUCTS INC	773 SALEM ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325894	SHELL 137892	586 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
325893	SHELL 137893	361 MIDDLESEX AVE	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
131254	SURFACE COATING INC	100 EAMES ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
131254	SURFACE COATING INC	100 EAMES ST	WILMINGTON	DISCHARGE	MWRA SEWER CONNECTION
131265	TEXTRON SYSTEMS CORPORATION	201 LOWELL ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
131267	THERMO ELECTRON TECOMET	115 EAMES ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
131267	THERMO ELECTRON TECOMET	115 EAMES ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
131267	THERMO ELECTRON TECOMET	115 EAMES ST	WILMINGTON	DISCHARGE	MWRA SEWER CONNECTION
308853	WILMINGTON DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
308853	WILMINGTON DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER

**UNDERGROUND STORAGE TANKS WITHIN LYNN WATER SUPPLY PROTECTION AREAS
(INCLUDING IPSWICH RIVER AND SAUGUS RIVER WATERSHEDS)**

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
BURLWOOD REALTY CORPORATION	11 GRANT AVE	BURLINGTON	OTHER	4000	DIESEL
SHELL SERVICE STATION	198 CAMBRIDGE STREET	BURLINGTON	GAS STATION	10000	DIESEL
SHELL SERVICE STATION	198 CAMBRIDGE STREET	BURLINGTON	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	198 CAMBRIDGE STREET	BURLINGTON	GAS STATION	10000	GASOLINE
COLONIAL HILTON	427 WALNUT ST	LYNNFIELD	OTHER	1000	GASOLINE
COLONIAL HILTON	427 WALNUT ST	LYNNFIELD	OTHER	500	DIESEL
PORTSIDE DBA PUMP 'N PANTRY	793 MAIN ST	LYNNFIELD	GAS STATION	12000	GASOLINE
PORTSIDE DBA PUMP 'N PANTRY	793 MAIN ST	LYNNFIELD	GAS STATION	12000	GASOLINE
SAGAMORE SPRING GOLF CLUB INC	1287 MAIN ST	LYNNFIELD	COUNTRY CLUB/GOLF COURSE	2000	GASOLINE
TOWN OF LYNNFIELD	55 SUMMER ST	LYNNFIELD	MUNICIPAL	500	

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
7-ELEVEN	237 MAIN ST	NORTH READING	GAS STATION	8000	GASOLINE
BOBCAT OF BOSTON INC	20 CONCORD ST	NORTH READING	VEHICLE DEALER	3000	GASOLINE
LILY TRUCK LEASING CORPORATION	84 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL
LILY TRUCK LEASING CORPORATION	84 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL
M H AUTO SERVICE INC	1 WASHINGTON ST	NORTH READING	GAS STATION	8000	GASOLINE
M H AUTO SERVICE INC	1 WASHINGTON ST	NORTH READING	GAS STATION	4000	GASOLINE
M H AUTO SERVICE INC	1 WASHINGTON ST	NORTH READING	GAS STATION	4000	DIESEL
MOBIL	160 PARK AVE	NORTH READING	GAS STATION	10000	GASOLINE
MOBIL	160 PARK AVE	NORTH READING	GAS STATION	8000	GASOLINE
MOBIL	160 PARK AVE	NORTH READING	GAS STATION	6000	GASOLINE
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	8000	WASTE OIL
NORTH READING'S BEST	142 MAIN ST	NORTH READING	GAS STATION	10000	GASOLINE
NORTH READING'S BEST	142 MAIN ST	NORTH READING	GAS STATION	10000	GASOLINE
NORTH READING'S BEST	142 MAIN ST	NORTH READING	GAS STATION	10000	GASOLINE
NORTH READING TEXACO	231 MAIN ST	NORTH READING	GAS STATION	10000	GASOLINE
NORTH READING TEXACO	231 MAIN ST	NORTH READING	GAS STATION	8000	GASOLINE
NORTH READING TEXACO	231 MAIN ST	NORTH READING	GAS STATION	5000	DIESEL
ROADWAY EXPRESS INC	95 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	8000	DIESEL
ROADWAY EXPRESS INC	95 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	8000	DIESEL
TEMPLE OIL SERVICE	290 MAIN ST	NORTH READING	GAS STATION	15000	DIESEL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
TEMPLE OIL SERVICE	290 MAIN ST	NORTH READING	GAS STATION	15000	FUEL OIL
THOMSON COUNTRY CLUB	20 ELM ST	NORTH READING	OTHER	2500	GASOLINE
THOMSON COUNTRY CLUB	20 ELM ST	NORTH READING	OTHER	2500	FUEL OIL
CHARLIE'S TOWING & AUTO	431 MAIN ST	READING	GAS STATION	12000	GASOLINE
CHARLIE'S TOWING & AUTO	431 MAIN ST	READING	GAS STATION	10000	GASOLINE
CHARLIE'S TOWING & AUTO	431 MAIN ST	READING	GAS STATION	10000	GASOLINE
CHARLIE'S TOWING & AUTO	431 MAIN ST	READING	GAS STATION	1000	WASTE OIL
CUMBERLAND FARMS #2124	297-301 SALEM ST	READING	GAS STATION	8000	GASOLINE
CUMBERLAND FARMS #2124	297-301 SALEM ST	READING	GAS STATION	8000	GASOLINE
CUMBERLAND FARMS #2124	297-301 SALEM ST	READING	GAS STATION	8000	GASOLINE
GETTY STATION #30355	306 MAIN ST	READING	GAS STATION	5000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
GETTY STATION #30355	306 MAIN ST	READING	GAS STATION	5000	GASOLINE
GETTY STATION #30355	306 MAIN ST	READING	GAS STATION	5000	GASOLINE
MOBIL	178 MAIN ST	READING	GAS STATION	10000	GASOLINE
MOBIL	178 MAIN ST	READING	GAS STATION	10000	GASOLINE
MOBIL	178 MAIN ST	READING	GAS STATION	10000	GASOLINE
MOBIL	178 MAIN ST	READING	GAS STATION	10000	GASOLINE
MOBIL	178 MAIN ST	READING	GAS STATION	10000	GASOLINE
MOBIL #CY1	1330 MAIN ST	READING	GAS STATION	10000	DIESEL
MOBIL #CY1	1330 MAIN ST	READING	GAS STATION	10000	GASOLINE
MOBIL #CY1	1330 MAIN ST	READING	GAS STATION	10000	GASOLINE
MOBIL #CY1	1330 MAIN ST	READING	GAS STATION	550	FUEL OIL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
MOBIL #CY1	1330 MAIN ST	READING	GAS STATION	550	WASTE OIL
SANBORN HILL SERVICE STATION	1462 MAIN ST	READING	GAS STATION	6000	GASOLINE
SANBORN HILL SERVICE STATION	1462 MAIN ST	READING	GAS STATION	2000	GASOLINE
SANBORN HILL SERVICE STATION	1462 MAIN ST	READING	GAS STATION	6000	DIESEL
READING SQUARE TEXACO	749 MAIN ST	READING	GAS STATION	12000	GASOLINE
READING SQUARE TEXACO	749 MAIN ST	READING	GAS STATION	10000	GASOLINE
READING SQUARE TEXACO	749 MAIN ST	READING	GAS STATION	8000	GASOLINE
S M HUDSON INC	26 BRANDE CT	READING	PETR. DISTR	20000	FUEL OIL
S M HUDSON INC	26 BRANDE CT	READING	PETR. DISTR	20000	FUEL OIL
SHELL SERVICE STATION #137832	110 MAIN ST	READING	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION #137832	110 MAIN ST	READING	GAS STATION	10000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
SHELL SERVICE STATION #137832	110 MAIN ST	READING	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION #137832	110 MAIN ST	READING	GAS STATION	250	WASTE OIL
SUNOCO #0005-2027	467 MAIN ST	READING	GAS STATION	10000	GASOLINE
SUNOCO #0005-2027	467 MAIN ST	READING	GAS STATION	10000	GASOLINE
SUNOCO #0005-2027	467 MAIN ST	READING	GAS STATION	10000	GASOLINE
SUNOCO #0005-2027	467 MAIN ST	READING	GAS STATION	1000	FUEL OIL
SUNOCO #0005-2027	467 MAIN ST	READING	GAS STATION	1000	WASTE OIL
TEXACO SERVICE LOC #100027	87 WALKERS BROOK DR	READING	GAS STATION	10000	GASOLINE
TEXACO SERVICE LOC #100027	87 WALKERS BROOK DR	READING	GAS STATION	10000	GASOLINE
TEXACO SERVICE LOC #100027	87 WALKERS BROOK DR	READING	GAS STATION	10000	GASOLINE
TEXACO SERVICE LOC #100027	87 WALKERS BROOK DR	READING	GAS STATION	10000	DIESEL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
TEXACO SERVICE LOC #100027	87 WALKERS BROOK DR	READING	GAS STATION	550	WASTE OIL
TOSCO #2634674	85 MAIN ST	READING	GAS STATION	12000	GASOLINE
TOSCO #2634674	85 MAIN ST	READING	GAS STATION	12000	GASOLINE
TOSCO #2634674	85 MAIN ST	READING	GAS STATION	12000	GASOLINE
A L PRIME ENERGY	319 SALEM ST	WAKEFIELD	GAS STATION	8000	GASOLINE
A L PRIME ENERGY	319 SALEM ST	WAKEFIELD	GAS STATION	8000	GASOLINE
A L PRIME ENERGY	319 SALEM ST	WAKEFIELD	GAS STATION	8000	GASOLINE
STEVE'S SERVICE CENTER	369 NORTH AVE	WAKEFIELD	GAS STATION	8000	GASOLINE
STEVE'S SERVICE CENTER	369 NORTH AVE	WAKEFIELD	GAS STATION	8000	GASOLINE
STEVE'S SERVICE CENTER	369 NORTH AVE	WAKEFIELD	GAS STATION	6000	GASOLINE
TOSCO #2634627	200 LOWELL ST	WAKEFIELD	GAS STATION	12000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
TOSCO #2634627	200 LOWELL ST	WAKEFIELD	GAS STATION	10000	GASOLINE
TOSCO #2634627	200 LOWELL ST	WAKEFIELD	GAS STATION	10000	GASOLINE
BELL ATLANTIC	408 MAIN ST	WILMINGTON	UTILITIES	2500	DIESEL
DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	MUNICIPAL	10000	GASOLINE
DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	MUNICIPAL	10000	DIESEL
DYNAMICS RESEARCH CORP	50 CONCORD ST	WILMINGTON	OTHER	4000	OTHER
EXXONMOBIL OIL CORPORATION	316 LOWELL ST	WILMINGTON	GAS STATION	12000	GASOLINE
EXXONMOBIL OIL CORPORATION	316 LOWELL ST	WILMINGTON	GAS STATION	10000	GASOLINE
EXXONMOBIL OIL CORPORATION	316 LOWELL ST	WILMINGTON	GAS STATION	6000	GASOLINE
EXXONMOBIL OIL CORPORATION	316 LOWELL ST	WILMINGTON	GAS STATION	1000	GASOLINE
FRED'S SERVICE CENTER	324 MAIN ST	WILMINGTON	GAS STATION	10000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
FRED'S SERVICE CENTER	324 MAIN ST	WILMINGTON	GAS STATION	4000	GASOLINE
GIBBS OIL CO LTD PARTNERSHIP	342 MAIN ST	WILMINGTON	GAS STATION	10000	GASOLINE
GIBBS OIL CO LTD PARTNERSHIP	342 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
GIBBS OIL CO LTD PARTNERSHIP	342 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
HESS STATION	273 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
HESS STATION	273 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
HESS STATION	273 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
J A MIARA TRANSPORATION	140 WEST ST	WILMINGTON	TRUCK/TRANSPORT	10000	DIESEL
J A MIARA TRANSPORATION	140 WEST ST	WILMINGTON	TRUCK/TRANSPORT	4000	GASOLINE
JIMMY'S GARAGE	945 MAIN ST	WILMINGTON	GAS STATION	6000	GASOLINE
JIMMY'S GARAGE	945 MAIN ST	WILMINGTON	GAS STATION	6000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
JIMMY'S GARAGE	945 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
JIMMY'S GARAGE	945 MAIN ST	WILMINGTON	GAS STATION	8000	DIESEL
JOE BARRY OIL INC	312 MAIN ST	WILMINGTON	PETROLEUM DISTRIBUTOR	20000	FUEL OIL
JOE BARRY OIL INC	312 MAIN ST	WILMINGTON	PETROLEUM DISTRIBUTOR	20000	FUEL OIL
JOE BARRY OIL INC	312 MAIN ST	WILMINGTON	PETROLEUM DISTRIBUTOR	20000	DIESEL
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	16000	HAZARDOUS
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	16000	HAZARDOUS
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	16000	HAZARDOUS
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	16000	HAZARDOUS
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	8000	HAZARDOUS
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	8000	HAZARDOUS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
R & V REALTY TRUST	360 MIDDLESEX AVE	WILMINGTON	GAS STATION	8000	GASOLINE
R & V REALTY TRUST	360 MIDDLESEX AVE	WILMINGTON	GAS STATION	6000	GASOLINE
R & V REALTY TRUST	360 MIDDLESEX AVE	WILMINGTON	GAS STATION	6000	GASOLINE
RT 38 GAS AND SERVICE	603 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
RT 38 GAS AND SERVICE	603 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
RT 38 GAS AND SERVICE	603 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
RT 38 GAS AND SERVICE	603 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
SHELL SERVICE STATION	361 MIDDLESEX AVE	WILMINGTON	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION	361 MIDDLESEX AVE	WILMINGTON	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION	361 MIDDLESEX AVE	WILMINGTON	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION	361 MIDDLESEX AVE	WILMINGTON	GAS STATION	1000	WASTE OIL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
SHELL SERVICE STATION	586 MAIN ST & LOWELL	WILMINGTON	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	586 MAIN ST & LOWELL	WILMINGTON	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	586 MAIN ST & LOWELL	WILMINGTON	GAS STATION	10000	GASOLINE
TEXTRON SYSTEMS CORPORATION	201 LOWELL ST	WILMINGTON	INDUSTRIAL	20000	FUEL OIL
TEXTRON SYSTEMS CORPORATION	201 LOWELL ST	WILMINGTON	INDUSTRIAL	20000	FUEL OIL
TEXTRON SYSTEMS CORPORATION	201 LOWELL ST	WILMINGTON	INDUSTRIAL	1000	FUEL OIL
TOWN MARKET CITGO	490 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
TOWN MARKET CITGO	490 MAIN ST	WILMINGTON	GAS STATION	5000	GASOLINE
TOWN MARKET CITGO	490 MAIN ST	WILMINGTON	GAS STATION	5000	GASOLINE

FOR MORE INFORMATION ON UNDERGROUND WATER DISCHARGE STORAGE TANKS, VISIT THE MASSACHUSETTS DEPARTMENT OF FIRE SERVICES WEB SITE: [HTTP://WWW.STATE.MA.US/DFS/UST/USTHOME.HTM](http://www.state.ma.us/dfs/ust/usthome.htm)

NOTE: THIS APPENDIX INCLUDES ONLY THOSE FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA(S) THAT MEET STATE REPORTING REQUIREMENTS AND REPORT TO THE APPROVED APPROPRIATE AGENCIES. ADDITIONAL FACILITIES LOCATED WITHIN THE WATER SUPPLY PROTECTION AREA(S) SHOULD BE CONSIDERED IN LOCAL DRINKING WATER SOURCE PROTECTION PLANNING.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Lynn Water Supply Protection Areas, and the Ipswich River and Saugus River Watersheds

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0001813	Route 125 North Andover Bypass	Andover	Oil
3-0011228	4 Brookfield Rd	Burlington	Oil
3-0016513	8 Broadway	Lynnfield	Oil and Hazardous Material
3-0000692	60 Concord St	North Reading	--
3-0002363	95 Concord St	North Reading	Oil
3-0002584	70 Concord St	North Reading	--
3-0002804	5 Hallberg Park	North Reading	--
3-0003925	237 Main St	North Reading	--
3-0004007	Cedar St	North Reading	Oil

RTN	Release Site Address	Town	Contaminant Type
3-0004468	142 Main St	North Reading	--
3-0004481	1 Boxwood Rd	North Reading	Oil
3-0017390	80 Concord St	North Reading	Hazardous Material
3-0020512	216 Main St	North Reading	Oil
3-0002937	87 Walkers Brook Dr	Reading	Oil
3-0004141	287 Main St	Reading	--
3-0013565	Causeway St/Ma Hwy Dept	Reading	Oil and Hazardous Material
3-0015471	16 Percy Ave	Reading	Oil
3-0017825	75 New Crossing Rd	Reading	Oil
3-0018903	281 Main St	Reading	Hazardous Material
3-0019494	49 Grey Coach Rd	Reading	Oil
3-0020218	Walkers Brook Rd	Reading	Oil
3-0001720	493 Salem St	Wakefield	Oil
3-0018525	5 Bryant St	Wakefield	Oil
3-0000471	51 Eames St	Wilmington	Oil
3-0000518	50 Fordham Rd	Wilmington	Oil
3-0000625	I-93 Lowell St	Wilmington	--
3-0000776	324 Main St	Wilmington	--
3-0001728	945 Main St	Wilmington	Oil
3-0001916	101 Main St	Wilmington	Oil
3-0002549	730 Main St	Wilmington	Oil
3-0002889	273 Main St	Wilmington	--
3-0003548	603 Main St	Wilmington	--
3-0003766	100 Ainsworth Rd	Wilmington	Oil
3-0004022	103 Main St	Wilmington	--
3-0004170	319a Andover St	Wilmington	Oil
3-0012586	586 Main St	Wilmington	Oil
3-0013922	312 Main St	Wilmington	Oil

RTN	Release Site Address	Town	Contaminant Type
3-0014811	315-319 Main St	Wilmington	Hazardous Material
3-0015247	1 Burlington Ave	Wilmington	Hazardous Material
3-0017097	80 Industrial Way	Wilmington	Hazardous Material
3-0019289	80 Industrial Way	Wilmington	Hazardous Material
3-0019380	80 Industrial Way	Wilmington	Hazardous Material
3-0019651	212 Main St	Wilmington	Oil and Hazardous Material
3-0019809	135 Andover St	Wilmington	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Lynnfield Center Water District

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Lynnfield Center Water District
<i>PWS Address</i>	83 Phillips Road
<i>City/Town</i>	Lynnfield
<i>PWS ID Number</i>	3164000
<i>Local Contact</i>	Ken Burnham - Superintendent
<i>Phone Number</i>	(781) 334-3901

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

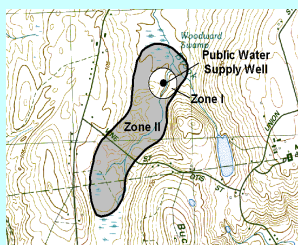
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Additional Resources Available for Source Protection
5. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 276

Susceptibility: Moderate

<i>Well Names</i>	<i>Source IDs</i>
Glen Drive Well #1	3164000-05G
Glen Drive Well #2	3164000-06G
Glen Drive Well #3	3164000-07G
Glen Drive Well #4	3164000-08G

Zone II #: 292

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Phillips Tubular Wells	3164000-01G
Phillips Well #9	3164000-03G
Phillips Well #26	3164000-04G
Main Street G.P. Well	3164000-02G

The wells for the Lynnfield Center Water District are located within two separate water supply protection areas. The wells each have a Zone I radius of 400 feet, except for the Phillip Tubular Wells, which have a Zone I radius of 250 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Discussion of Land Uses in the Protection Areas

The Zone IIs for Lynnfield Center are predominantly forested and residential, with a small amount of recreational land use (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key issues include:

1. Residential Land Uses and Activities
2. Presence of Oil or Hazardous Material Contamination Sites
3. Comprehensive Wellhead Protection Planning

The ranking of susceptibility to contamination for Lynnfield Center's Phillip and Main Street Wells is high, based on the presence of at least one high threat land use within the Zone II, as seen in Table 2. Whereas, the ranking of susceptibility to contamination for Lynnfield Center's Glen Drive Wells is moderate, based on the presence of at least one moderate threat land use within the Zone II, as seen in Table 2.

1. Residential Land Use - If managed improperly, household hazardous waste, septic systems, lawn care, and pet waste can all contribute to groundwater contamination. Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances.

If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Fertilizers and pesticides contain hazardous chemicals that can travel through the soil and contaminate ground water if over-applied. Pet waste may contain bacteria, parasites, or viruses that pose a health risk. Water supplies may also be threatened from improper use or disposal of chemical products used in homes. Educating residents on proper disposal of these materials is the best defense against pollution.

Residential Recommendations - Household Hazardous Waste:

- ✓ **Proper Disposal** - Educate residents on the problem of disposing of hazardous materials in landfills, septic systems, wastewater treatment plants, storm drains, and on the ground. Encourage residents to participate in the Town of Lynnfield's annual Household Hazardous Waste Collection Day.
- ✓ **Alternative Products** - Provide residents with information on options that are available to substitute less hazardous substances for many products used in the home.

Residential Recommendations - Septic systems:

- ✓ **System Care** - Educate residents on private septic systems about using cleaning compounds that are safe for the septic system, on proper disposal practices, i.e. only sanitary waste in the septic system. Information on septic systems can be found at Massachusetts Department of Environmental Protections website <http://www.state.ma.us/dep/brp/files/yoursyst.htm>.
- ✓ **Proper Disposal** - Residents should dispose of used oil, antifreeze, paints, and other household chemicals properly - not in septic systems.

Residential Recommendations - Lawn Care and Landscaping:

- ✓ **Environmentally Sound Lawn Care** - Provide educational materials to residents about the proper application of pesticides or fertilizers. Landscape with native

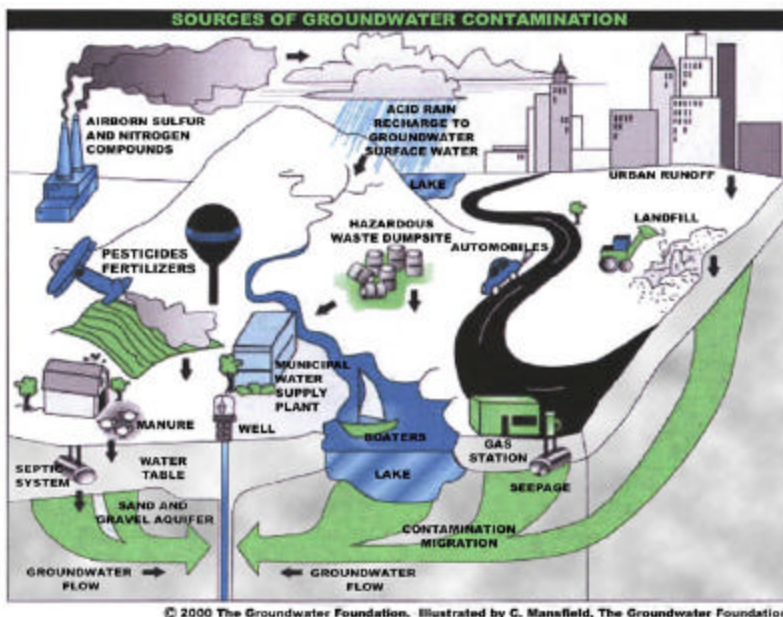
grasses, native flowering plants and trees and shrubs. Once established, native plants require less water and may not require fertilizer, herbicide or pesticide use. Encourage the use of native plants and landscaping by establishing a demonstration area at a town facility. Information on environmentally sound lawn care practices can be obtained from the Massachusetts Department of Food and Agriculture Pesticide Bureau's website at <http://www.massdfa.org>.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



Residential Recommendations - Heating Oil Tanks:

- ✓ **Aboveground Storage Tanks** - Provide educational materials to residents regarding the proper storage of liquid petroleum products in aboveground storage tanks. The Department requires all Wellhead protection zoning and non zoning controls to prohibit the siting of liquid petroleum products storage in Zone II unless such storage is aboveground, on an impervious surface and either in a container or in an aboveground tank within a building, or in an area that has a containment system designed and operated to hold either 10 percent of the total possible storage capacity of all containers, or 110% of the largest container storage capacity whichever is greater.

Consult with the local fire department for any additional local code requirements regarding aboveground storage tanks. A fact sheet on basement or outside oil tank can be obtained from the Barnstable County Department of Health And Environment at <http://www.CapeCod.net/bcdhe/oil/oil.htm>.



2. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 3-0001019.

For more information refer to the attached map, Appendix C, and the Bureau of Waste Site Cleanup’s website at <http://www.state.ma.us/dep/bwsc/sitelist.htm>

Oil or Hazardous Material Contamination Sites – Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or hazardous material contamination sites.

3. Comprehensive Wellhead Protection Planning - Protection planning prevents drinking water contamination by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are numerous resources available to help communities in developing a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ **Develop A Land Acquisition Plan** - Land acquisition projects protect water supplies by limiting the land development potential. Acquisitions can be accomplished by water systems through conservation restrictions, land banking, land purchases and land donations. Sample conservation restrictions are available at: <http://www.state.ma.us/dep/brp/dws/>. Future development of Zone II is a major concern. The Department recommends that the water district acquire Zone II land closest to the Zone I or land that is subject to high-risk development (refer to Developing a local Wellhead Protection Plan).
- ✓ **Local Controls** - Coordinate efforts with local officials in North Reading and Peabody to compare existing controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://www.state.ma.us/dep/brp/dws/>.
- ✓ **Inspection Program** - Develop and implement an Inspection Program for facilities that generate, use, store, or dispose of hazardous/toxic materials. Local Board of Health and Building Inspectors working on inspections often include floor drain and underground storage tanks. Local inspection programs can provide valuable technical assistance on Best Management Practices.

Other land uses and activities that may be potential contaminant sources include gas stations, stormdrains, and junk yards. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential contaminant sources is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential contaminant sources are identified, specific recommendations like those below should be used to better protect the Lynnfield Center wells.

What are "BMPs?"

Best Management Practices are structural (i.e. oil & grease trap catch basins), nonstructural (i.e. hazardous waste collection days) or managerial measures that are used to protect and improve surface water and groundwater quality.

Section 3: Source Water Protection

Implementing source protection measures and Best Management Practices (BMPs) will reduce the Lynnfield Center Water District System’s susceptibility to contamination.

Additional source protection recommendations are listed in Table 3 and the Key Issues above.

The Lynnfield Center Water District is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix 2: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Commercial				
Gas Stations	1	H	292	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Golf Courses	1	M	276	Over-application or improper handling of fertilizers or pesticides
Residential				
Fuel Oil Storage (at residences)	Several	M	276, 292	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	276, 292	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	Numerous	M	276, 292	Household hazardous waste: improper disposal, and microbial contaminants
Miscellaneous				
Aboveground Storage Tanks	Several	M	276	Materials stored in tanks: spills, leaks, or improper handling
NPDES Locations	1	L	292	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	1	----	292	Oil or hazardous materials and waste: spills, leaks, or improper handling or storage
Stormwater Drains/ Retention Basins	Numerous	L	276	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Underground Storage Tanks	1	H	292	Spills, leaks, or improper handling stored materials
Water Treatment Sludge Lagoon	1	M	292	Improper management of sludge and wastewater

Water Supply Protection Area % that is Sewered = 0%

Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

- ❖ Adopting, through a Zoning Bylaw, a Groundwater Protection Overlay District that meets current MA Wellhead Protection Regulations 310 CMR 22.21(2). The watershed protection district covers more land than the delineated Zone II.
- ❖ The Lynnfield Center Water District owns approximately 1000 acres of watershed land.
- ❖ Working with the town to actively maintain stormdrain systems. Catch basins are designed with sumps in order to prevent hazardous materials from entering the drainage system. The Town also has an aggressive emergency response and spill control program.
- ❖ Providing material to consumers on conservation, and sound lawncare practices.

Appendix 1 includes specific recommendations for each of the following:

➤ **Partner with Local Businesses:**

Since many small businesses and industries use hazardous materials and produce hazardous waste products, it is essential to educate the business community about drinking water protection. Encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

➤ **Provide Outreach to the Community:**

Public education and community outreach ensure the long-term protection of drinking water supplies. Awareness often generates community cooperation and support. Residents and business owners are more likely to change their behavior if they know where the wellhead protection recharge area is located; what types of land uses and activities pose threats; and how their efforts can enhance protection.

➤ **Plan for the Future:**

One of the most effective means of protecting water supplies is planning, such as the adoption of local controls to protect watersheds and ground water. These controls may include health regulations, general ordinances, and zoning bylaws that prohibit potential sources of contamination from wellhead protection areas.

**Top 5 Reasons to
Develop a Local Wellhead
Protection Plan**

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. These recommendations are only part of your ongoing local drinking water source protection.

Section 4: Additional Resources Available for Source Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The assessment and protection recommendations in this SWAP report are provided as a tool to spur community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

The Lynnfield Center Water District should supplement this SWAP report with local information on potential sources of contamination and land uses. To aid in the protection of the wells, local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Funding Resources:

The Department’s Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing Water Supply Source Protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. For additional information, please refer to the program fact sheet from this year. Please note: each spring DEP posts a new Request for Response for the Grant program (RFR).

The Aquifer Land Acquisition Program protects both surface and groundwater used for drinking water purposes. Land acquisition is considered to be the single best way to protect a drinking water supply. Land acquisitions for water supply protection purposes include outright purchases, conservation restrictions, land donations, and interest in land taken by eminent domain. These funds will be available to water suppliers and municipal governments through the process described below.

All publicly owned water suppliers, districts, or municipalities are invited to express an interest by submitting a Statement of Need covering any land purchase expected to be made to protect a public water supply that can be completed by June 30, 2002. The Department of Environmental Protection will select respondents of the Draft Statement of Need to submit a completed Final Statement of Need based on DEP land acquisition standard operating procedures, ability to use the funds by June 30, 2002, and other environmental criteria as determined necessary by the Secretary and Commissioner.

For further information on the Aquifer Land Acquisition Program, contact Joseph McNealy, Director of Program Development, Department of Environmental Protection, at (617) 556-1068.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, Aquifer Land Acquisition Program, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm>.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Section 5: Appendices

1. Protection Recommendations
2. Regulated Facilities within the Water Supply Protection Area
3. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
4. Additional Documents on Source Protection in Lynnfield

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES	Monitor for non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21 (2)?	YES	Monitor activities in Zone II to assure compliance with local wellhead protection controls.
Do neighboring communities protect the Zone II areas extending into their communities?	Unknown	Request that municipal officials in North Reading and Peabody develop land use restrictions that meet 310 CMR 22.21(2).
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish a committee that includes representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	The town is encouraged to continue this program, and to include municipal facilities. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc .
Does the PWS provide wellhead protection education?	Some	Currently, the only outreach is through the annual Consumer Confidence Report, and by providing lawncare fact sheets. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN LYNNFIELD'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
262894	PUMP 'N PANTRY MOBIL	793 MAIN STREET	LYNNFIELD	FUEL DISPENSER	FUEL DISPENSER

UNDERGROUND STORAGE TANKS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
PUMP 'N PANTRY MOBIL	793 MAIN STREET	LYNNFIELD	GAS STATION	12000	GASOLINE
PUMP 'N PANTRY MOBIL	793 MAIN STREET	LYNNFIELD	GAS STATION	12000	GASOLINE
SAGAMORE SPRING GOLF CLUB	1287 MAIN STREET	LYNNFIELD	GOLF CLUB	2000	GASOLINE

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Lynnfield Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0001019	793 Main Street	Lynnfield	Oil

For more location information, please see the attached map. The map lists the release sites by RTN.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Manchester Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Manchester Water Department
<i>PWS Address</i>	Town Hall
<i>City/Town</i>	Manchester-by-the-Sea, MA 01944-1399
<i>PWS ID Number</i>	3166000
<i>Local Contact</i>	Robert Moroney – DPW Director
<i>Phone Number</i>	(978) 526-4450

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

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3. Source Water Protection
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Glossary

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Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

Groundwater Sources

Zone II #: 158

Susceptibility: High

Well Name	Source ID#
Lincoln Street Well	3166000-01G

Zone II #: 277

Susceptibility: High

Round Pond G.P. Well	3166000-02G
Round Pond Tubular Wells	3166000-03G

Surface Water Sources

Source Name	Source ID #	Susceptibility
Gravelly Pond	3166000-01S	High

Manchester-by-the-Sea Water Department (Manchester) maintains and operates four (4) public water supply sources. Manchester's water supplies are located within the North Coastal River basin. The watershed area (Zone C) for Gravelly Pond (01S) is located in the towns of Manchester, Beverly, Hamilton, and Wenham. The water supply protection area (Zone II) for Lincoln Street Well (01G) is located entirely within Manchester; and, the water supply protection area (Zone II) for Round Pond G.P. Well (02G) and Round Pond Tubular Wells (03G) is located within the towns of Hamilton, Manchester, and Wenham, with a small portion in Beverly.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The water supply protection areas for Manchester's sources are primarily a mixture of forest, residential, and recreation land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

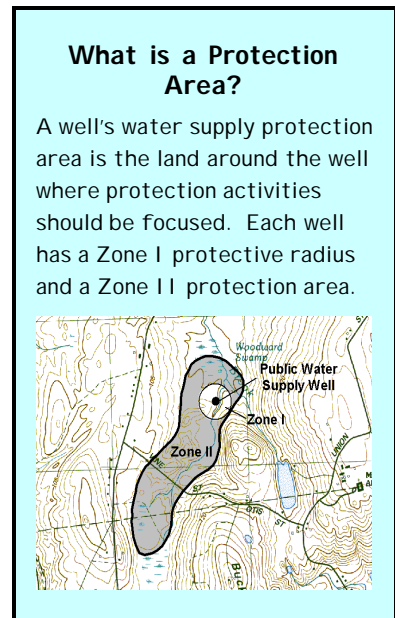
1. Activities in Zone I
2. Activities in Zone A
3. Residential Land Uses
4. Transportation Corridors
5. Golf Course
6. Comprehensive Surface Water Protection Planning

The ranking of susceptibility to contamination for Manchester's sources is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone I – The Zone I for the Lincoln Street Well (01G) and Round Pond G.P. Well (02G) is a 400 foot radius around the wellhead; the Zone I for Round Pond Tubular Wells (03G) is 250 feet around each well. Massachusetts drinking water regulations (310 CMR 22.00) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for: the Lincoln Street Well (01G) contains a portion of the golf course, parking for the high school, one (1) house on municipal sewer, and a portion of Lincoln Street; Round Pond G.P. Well (02G) contains two (2) houses on private septic systems and a portion of the local road; and Round Pond Tubular Wells (03G) contains a portion of the local road.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.



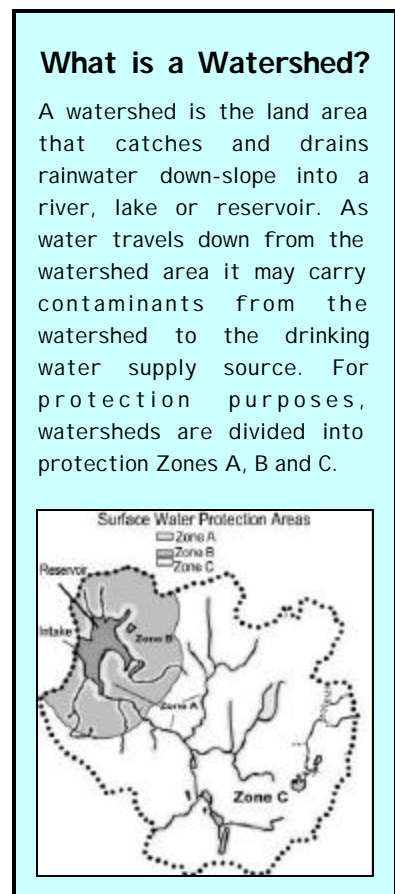
2. Activities in Zone A - The Zone A for a reservoir includes all areas within 400 feet of the reservoir shoreline and within 200 feet of either side of all streams and feeder ponds that flow into the reservoir. Land use activities within a Zone A may have an impact on surface water sources. Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and, unpermitted and unauthorized activities. Also, wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.

Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.
- ✓ Identify stormwater drains and the drainage system along transportation corridors. Work to better manage stormwater by pre-treating contaminated stormwater and/or redirecting stormwater outside of the Zone A.
- ✓ Continue your efforts to protect these areas and to monitor and review activities within the Zone A.

3. Residential Land Uses – Approximately 9% of the combined source protection areas consist of residential activities, of which a large portion is served by private septic systems, with the remainder being served by municipal sewerage. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.



- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

Work with communities within the combined source protection areas to:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

**When you fertilize the lawn,
Remember
you're not just fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108

4. Transportation Corridors - A major transportation corridor and other paved and unpaved local roads cross through the source protection areas. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins. The steep topography of the watershed results in application of de-icing materials to protect public health and safety by keeping the roads passable.

Transportation Corridor Recommendations:

- ✓ Identify stormwater drains and the drainage system along transportation corridors.
- ✓ Work with the Towns and State to have catch basins inspected, maintained, and cleaned on a regular schedule.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

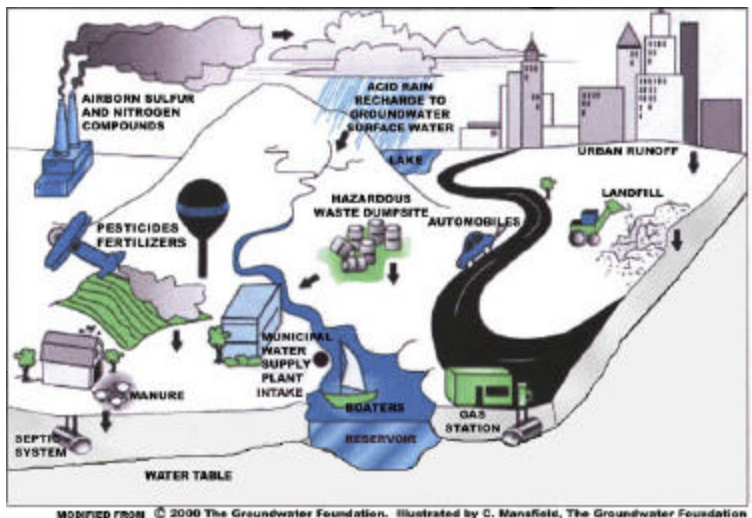


Figure 1: Sample watershed with examples of potential sources of contamination

(Continued on page 6)

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity Zone II & Zone C	Threat	Zone II # Zone C Source ID #	Potential Contaminant Sources*
Agricultural				
Fertilizer Storage or Use	1	M	277	Leaks, spills, improper handling, or over-application of fertilizers
Pesticide Storage or Use	1	H	277	Leaks, spills, improper handling, or over-application of pesticides
Commercial				
Service Stations/ Auto Repair Shops	1	H	158	Spills, leaks, or improper handling of automotive fluids, and solvents
Cemeteries	2	M	158	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Golf Courses	1	M	158	Over-application or improper handling of fertilizers or pesticides
Residential				
Fuel Oil Storage (at residences)	100+	M	All	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	100+	M	All	Over-application or improper storage and disposal of pesticides
Septic Systems/ Cesspools	100+	M	277, 01S	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous				
Aboveground Storage Tanks	2	M	277, 01S	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	numerous	L	277, 01S	Microbial contaminants
Landfills and Dumps	2	H	01S	Seepage of leachate
Schools, Colleges, and Universities	3	M	158, 277, 01S	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Stormwater Drains	several	L	158	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	1	M	158, 277, 01S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	4	H	158	Spills, leaks, or improper handling of stored materials

Land Uses	Quantity Zone II & Zone C	Threat	Zone II # Zone C Source ID #	Potential Contaminant Sources*
Miscellaneous				
Very Small Quantity Hazardous Waste Generators	1	L	158	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/ Recycling Station	1	M	01S	Improper management, seepage, and runoff of water contacting waste materials
Water Treatment Sludge Lagoons	3	M	01S	Improper management of sludge and wastewater
<p>Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

(Continued from page 4)

- ✓ Establish vegetated buffers along roads and parking areas to provide some filtration of contaminants.
- ✓ Encourage regular street sweeping. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.
- ✓ Conduct emergency drills to be ready for spills.
- ✓ Regularly inspect the watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.

5. Golf Courses - There is one golf course within the assessment area. Potential contaminants include the over-application or improper handling of pesticides and fertilizers. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Courses Recommendations:

- ✓ Encourage the golf course grounds manager to incorporate an Integrated Pest Management (IPM) approach into their grounds maintenance program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote Best Management Practices (BMPs) for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Contact owners/operators about water supply awareness and protection.

6. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the Town of Manchester-by-the-Sea has a groundwater and surface water protection bylaw that meets DEP’s Groundwater Protection regulations 310 CMR 22.21 and Surface Water Protection regulations 310 CMR 22.20 (b) and (c).

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

A Groundwater and Surface Water Supply Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply reservoirs.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Encourage watershed towns to adopt controls that meet 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ Continue to work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the towns, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Protection areas that are potential sources of

**When you wash your car in the driveway,
Remember
you're not just washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb, then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Water Street Boston, MA 02108

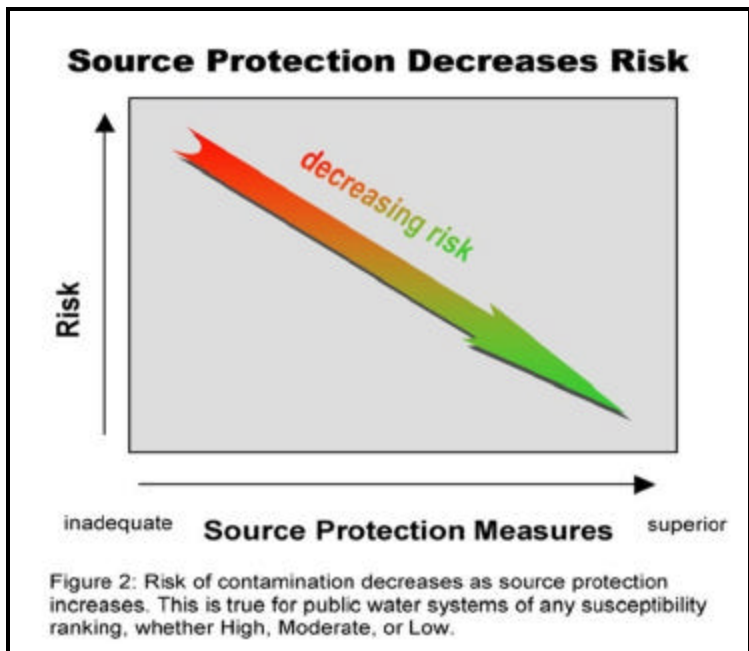
contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Current Land Uses and Source Protection:

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.



The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Enforcement support for source protection bylaw
- Purchase of watershed property

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Develop and implement a Groundwater and Surface Water Supply Protection Plan.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in watersheds and to cooperate on responding to spills or accidents.
- ✓ Work cooperatively with Boards of Health to develop an inventory of septic systems in watersheds.
- ✓ Work with businesses and others who have landscaped areas in the watersheds to encourage BMPs for the use of fertilizer and pesticide.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Continue to inspect the Zone A and Zone I areas regularly, and when feasible, remove prohibited non-water supply activities.

Top 5 Reasons to Develop a Local Groundwater and Surface Water Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with the watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow to the Zone II.

2. The groundwater in this area probably discharges to surface water feature such as a river rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The Department's Wellhead Protection Grant Program and Source Protection

Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects.

Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and Zone A?	NO	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials. To the extent possible, remove prohibited activities in Zone A and Zone I to comply with DEP's Zone A and Zone I requirements.
Are the Zone I's and Zone A posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone I's and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I and Zone A?	NO	Monitor prohibited activities in Zone A and Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	Work with the Planning Board to compare land use controls to see that they continue meet current requirements of 310 CMR 22.20 (B) and 310 CMR 22.20 (C). Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	YES - Hamilton UNKNOWN - Beverly, Wenham	Work with adjacent communities to include Manchester's water supply protection areas in their protection controls.
Planning		
Does the PWS have a local surface water and wellhead protection plan?	NO	Develop and implement a surface water supply and wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" and "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	Fire Department	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	SOME	Currently, outreach is through the annual Consumer Confidence Report, treatment plant tours, and sign posting. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups.

The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the water supply protection areas. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 5: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

- 1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
- 2. MA DEP SWAP Strategy
- 3. Land Use Pollution Potential Matrix
- 4. Draft Land/Associated Contaminants Matrix

Benefits

of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN MANCHESTER'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
136082	BAILEY'S SERVICE STATION	96 SUMMER STREET	MANCHESTER	VSQG	VERY SMALL QUANTITY GENERATOR OF HAZARDOUS WASTE
136082	BAILEY'S SERVICE STATION	96 SUMMER STREET	MANCHESTER	FULDSP	FUEL DISPENSER

UNDERGROUND STORAGE TANKS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
BAILEY'S SERVICE STATION	96 SUMMER STREET	MANCHESTER	GAS STATION	10000	GASOLINE
BAILEY'S SERVICE STATION	96 SUMMER STREET	MANCHESTER	GAS STATION	8000	GASOLINE
ESSEX COUNTY CLUB	153 SCHOOL STREET	MANCHESTER	COUNTRY CLUB	1000	GASOLINE
ESSEX COUNTY CLUB	153 SCHOOL STREET	MANCHESTER	COUNTRY CLUB	1000	GASOLINE

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Medfield Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Medfield Water Department
<i>PWS Address</i>	459 Main Street
<i>City/Town</i>	Medfield, Massachusetts 02052
<i>PWS ID Number</i>	3175000
<i>Local Contact</i>	Ken Feeney - Superintendent
<i>Phone Number</i>	(508) 359-8505

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

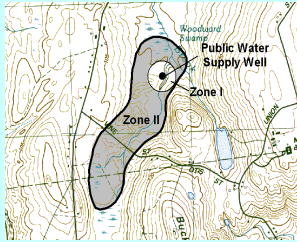
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Additional Resources Available for Source Protection
5. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 511

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Well #1 – Main Street	3175000-01G
Well #2 – Main Street	3175000-02G

Zone II #: 106

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Well #3 – Elm Street	3175000-03G
Well #4 – Elm Street	3175000-04G

Zone II #: 88

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Well #6 – Route 27	3175000-05G

The wells for the Medfield Water Department are located within three separate water supply protection areas, with portions extending into the towns of Dover, Millis, Sherborn, and Walpole. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The Medfield Water Department is looking to rehabilitate and reactivate the wellfield formerly operated by Medfield State Hospital. The Zone II for this source is almost entirely within the Zone II for Well #6.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Discussion of Land Uses in the Protection Areas

The Zone IIs for Medfield have a mixture of residential, commercial, industrial, open space, and forested land uses (refer to attached map for details). Other land uses include agricultural, and mining. Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key issues include:

1. Inappropriate Activities in Zone I
2. Local Businesses
3. Railroad Right Of Way
4. Oil or Hazardous Material Contamination Sites
5. Residential Land Uses and Activities
6. Sand and Gravel Operation
7. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for Medfield is high, based on the presence of at least one high threat land use within each Zone II, as seen in Table 2.

1. Inappropriate Activities in Zone I – Some older wells may not meet the Zone I requirement. In many cases the land is owned by municipalities, and is used for recreational activities. Among the significant threats to water supplies are septic systems, pesticides and fertilizers, storm water runoff and underground storage tanks which often accompany these land uses. Not owning or controlling the Zone I of a groundwater source puts drinking water supplies at significantly increased risk of contamination.

The “Drinking Water Regulations of Massachusetts” 310 CMR 22.21(3)(b) states that all suppliers of water shall acquire ownership or control of sufficient land around wells used as sources of drinking water to protect the water from contamination. This requirement shall generally be deemed to have been met if all land within the Zone I is under ownership or control of the supplier of water.

Inappropriate Activities in Zone I - Recommendations

- ✓ **Stormdrains** - Roadways and parking lots are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. Work with the Town to determine if stormdrains discharge into the Zone I of the Main Street Wells. If it is established stormdrains discharge into the Zone I, implement a plan to redirect or eliminate these discharges.
- ✓ **Emergency Response** - Accidents from automobiles and railroad cars can lead to spills of gasoline and other potentially dangerous transported chemicals. Ensure that emergency response measures are regularly updated in order to deal with potential spills.

2. Local Businesses – Because many small businesses and industries use hazardous materials, produce hazardous waste products, and often store large quantities of petroleum products, there is the potential for degrading water quality. Educating the business community about drinking water protection, and encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

Local Businesses - Recommendations:

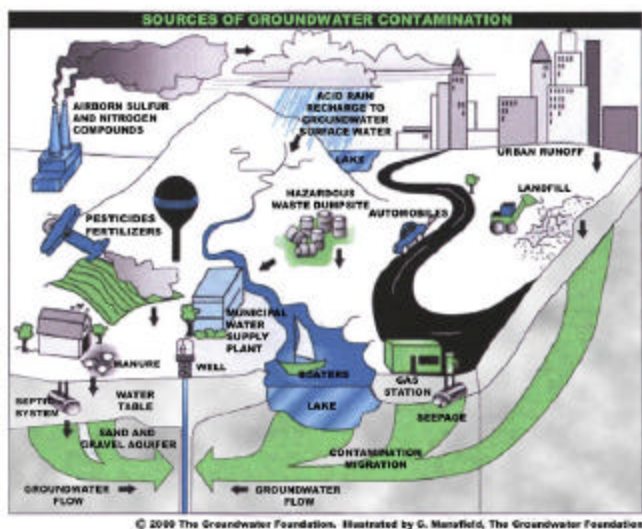
- ✓ **Hazardous Materials Program Best Management Practices** - Support the development and implementation of a hazardous materials program that includes a Bylaw or Health Regulation. Such a program educates businesses on hazardous material management requirements, explicitly informs the business community what is expected of them, and decreases the potential future liability businesses may be unknowingly creating for themselves. A local program

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



lets the town serve as a consultant, helping businesses protect themselves. See DEP’s website for additional information on developing a program for hazardous materials management at <http://www.state.ma.us/dep/brp/dws/files/hazmat.doc>.

- ✓ **Inspection Program** – Coordinate efforts with local officials in the development and implementation of an Inspection Program to prevent hazardous substances from entering water supplies. Inspections target facilities that generate, use, store, or disposal of hazardous/toxic materials. Programs can also include floor drain and underground storage tanks inspections. Local inspection programs often provide educational material and technical assistance on Best Management Practices. Building Inspectors are often involved in local inspection programs.

- ✓ **Hazardous Materials Best Management Practices** - Work with local businesses to encourage training on proper hazardous material use, disposal, and emergency response. Refer to the attached list of resources for more information on hazardous material BMPs.
- ✓ **Storage Tanks** - Support your local fire department in upgrading all above and below ground oil/hazardous material storage tanks in order to meet current construction standards. Funding for replacing underground storage tanks is available through the MA Department of Revenue. For more information, refer to http://www.dor.state.ma.us/ust/ust_home.htm
- ✓ **Register Hazardous Waste Generators** - Work with local businesses to register with DEP those facilities that are unregistered generators of hazardous waste or waste oil.
- ✓ **Monitor Land Uses** - Work with the Selectmen, Board of Health and Planning Board to monitor land uses within and proximal to the Zone II. Refer to the Wellhead Protection Plan guidance and model bylaws at <http://www.state.ma.us/dep/brp/dws/files/whplan.doc> for types of activities that should be prohibited and managed in the vicinity of public or private water supplies.



- ✓ **Lawn care and Landscaping** - Encourage local businesses to incorporate Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides. For more information, refer to http://www.massdfa.org/pesticides/publications/IPM_kit_for_bldg_mgrs.pdf

3. Railroad Right-Of-Way – Rail corridors serving passenger and/or freight trains are potential contaminant sources due to chemicals released during normal use, track maintenance, and accidents. Over-application or improper handling of herbicides during railroad right-of-way maintenance is a potential source of contamination. Leaks or spills of transported chemicals or train maintenance chemicals are also potential sources of contamination to the water supply.

Railroad Right-of-Way - Recommendations:

- ✓ **Best Management Practices** - Work with local officials during their review of the railroad right-of-way Yearly Operating Plan to ensure Best Management Practices are implemented with regard to vegetation control in the Zone II, and that pesticides are not used in the Zone I, in accordance with 333 CMR 11.00: Rights-of-Way Management.
- ✓ **Emergency Response Plan** - Work with your local fire department to review emergency response plans. Request that emergency response teams practice containment of potential contaminants from train accidents.

4. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0003142, 3-0003830, 3-0013400, 3-0013401, 3-0013403, 3-0015514, 3-0002548, 3-0003323, 3-0004033, 3-0004704, 3-0011836.

For more information refer to the attached map, Appendix C, and the Bureau of Waste Site Cleanup’s website at <http://www.state.ma.us/dep/bwsc/sitelist.htm>

Oil or Hazardous Material Contamination Sites – Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or hazardous material contamination sites.

5. Residential Land Use - If managed improperly, household hazardous waste, septic systems, lawn care, and pet waste can all contribute to groundwater contamination. Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances.

If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Fertilizers and pesticides contain hazardous chemicals that can travel through the soil and contaminate ground water if over-applied. Pet waste may contain bacteria, parasites, or viruses that pose a health risk. Water supplies may also be threatened from improper use or disposal of chemical products used in homes. Educating residents on proper disposal of these materials is the best defense against pollution.

Residential Recommendations - Household Hazardous Waste:

- ✓ **Proper Disposal** - Educate residents on the problem of disposing of hazardous materials in landfills, septic systems, wastewater treatment plants, storm drains, and on the ground. Encourage residents to participate in the Town of Medfield’s annual Household Hazardous Waste Collection Day.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix 2: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Agricultural				
Fertilizer Storage or Use	1	M	88	Leaks, spills, improper handling, or over-application of fertilizers
Manure Storage or Spreading	1	H	88	Manure (microbial contaminants): improper handling
Nurseries	1	M	106	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Commercial				
Body Shops	1	H	88	Vehicle paints, solvents, and primer products: improper management
Gas Stations	1	H	511	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	3	H	106, 511	Automotive fluids, and solvents: spills, leaks, or improper handling
Cemeteries	1	M	511	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Dry Cleaners	2	H	511	Spills, leaks, or improper handling of solvents and wastes
Funeral Homes	1	L	511	Spills, leaks, or improper handling of hazardous chemicals
Laundromats	1	L	511	Improper management of wash water
Nursing Homes	1	L	511	Microbial contaminants
Printer And Blueprint Shops	1	M	88	Printing inks and chemicals: spills, leaks, or improper handling or storage
Railroad Tracks And Yards	4	H	511, 106, 88	Herbicides, transported chemicals and maintenance chemicals; fuel storage: over-application or improper handling, leaks or spills
Research Laboratories	1	M	511	Spills, leaks, or improper handling or storage of laboratory chemicals and wastes
Sand And Gravel Mining/Washing	1	M	511	Heavy equipment, fuel storage, clandestine dumping: spills or leaks
Industrial				
Asphalt, Coal Tar, And Concrete Plants	1	M	511	Hazardous chemicals and wastes: spills, leaks, or improper handling or storage
Electronics/Electrical Manufacturers	1	H	511	Chemicals and process wastes: spills, leaks, or improper handling or storage

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Industrial				
Industry/Industrial Parks	1	H	511	Industrial chemicals and metals: spills, leaks, or improper handling or storage
Machine/Metalworking Shops	1	H	88	Spills, leaks, or improper handling of solvents; metal tailings
Residential				
Fuel Oil Storage (at residences)	Numerous	M	511, 106, 88	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	511, 106, 88	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Numerous	M	511, 106, 88	Household hazardous waste: improper disposal, and microbial contaminants
Miscellaneous				
Aboveground Storage Tanks	1	M	88	Materials stored in tanks: spills, leaks, or improper handling
Composting Facilities	1	L	88	Storage and improper handling of organic material, animal waste, and runoff
Landfills and Dumps	1	H	88	Seepage of leachate
Large Quantity Hazardous Waste Generators	4	H	511, 88	Hazardous materials and waste: spills, leaks, or improper handling or storage
NPDES Locations	1	L	88	Hazardous material and wastes: improper disposal
Oil or Hazardous Material Sites	11	----	511, 88	Oil or hazardous materials and waste: spills, leaks, or improper handling or storage
Road And Maintenance Depots	2	M	88	Asphalt materials and other chemicals, aboveground and underground storage tanks with gasoline and diesel storage: spills, leaks, or improper handling of deicing materials
Snow Dump	1	M	88	Improper handling of melt water containing de-icing and other chemicals from roads and parking lots
Small quantity hazardous waste generators	10	M	511, 106, 88	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/Retention Basins	Numerous	L	511, 106, 88	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way - Type: <u>electric</u>	1	L	106	Construction and corridor maintenance, over-application or improper handling of pesticides
Transportation Corridors	4	M	511, 106	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	26	H	511, 106, 88	Spills, leaks, or improper handling stored materials
Very Small Quantity Hazardous Waste Generator	10	L	511, 106, 88	Hazardous materials and waste: spills, leaks, or improper handling or storage
Waste Transfer/Recycling Station	2	M	88	Improper management, seepage, and runoff of water contacting waste materials

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination
Miscellaneous				
Wastewater Treatment Plant/Collection Facility/Lagoon	2	M	88	Treatment chemicals or equipment maintenance materials: improper handling or storage; wastewater: improper management
Water Supply Protection Area % that is Sewered = 50%				
Notes:				
1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.				
2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.				
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.				
* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.				

✓ **Alternative Products** - Provide residents with information on options that are available to substitute less hazardous substances for many products used in the home.

Residential Recommendations - Septic systems:

✓ **System Care** - Educate residents on private septic systems about using cleaning compounds that are safe for the septic system, on proper disposal practices, i.e. only sanitary waste in the septic system. Information on septic systems can be found at Massachusetts Department of Environmental Protection's website <http://www.state.ma.us/dep/brp/files/yoursyst.htm>.

✓ **Proper Disposal** - Residents should dispose of used oil, antifreeze, paints, and other household chemicals properly - not in septic systems.

Residential Recommendations - Lawn Care and Landscaping:

✓ **Environmentally Sound Lawn Care** - Provide educational materials to residents about the proper application of pesticides or fertilizers. Landscape with native grasses, native flowering plants and trees and shrubs. Once established, native plants require less water and may not require fertilizer, herbicide or pesticide use. Encourage the use of native plants and landscaping by establishing a demonstration area at a town facility. Information on environmentally sound lawn care practices can be obtained from the Massachusetts Department of Food and Agriculture Pesticide Bureau's website at <http://www.massdfa.org>.

Residential Recommendations - Heating Oil Tanks:

✓ **Aboveground Storage Tanks** - Provide educational materials to residents regarding the proper storage of liquid petroleum products in aboveground storage tanks. The Department requires all Wellhead protection zoning and non zoning controls to prohibit the siting of liquid petroleum products storage in Zone II unless such storage is aboveground, on an impervious surface and either in a container or in an aboveground tank within a building, or in an area that has a containment system designed and operated to hold either 10 percent of the total possible storage capacity of all containers, or 110% of the largest container storage capacity whichever is greater.

Consult with the local fire department for any additional local code requirements regarding aboveground storage tanks. A fact sheet on basement or outside oil tank can be obtained from the Barnstable County Department of Health And Environment at <http://www.CapeCod.net/bcdhe/oil/oil.htm>.

6. Sand and Gravel Operation - The potential for ground water contamination during removal of sand and gravel operations exists as a result of accidental spills or leaks from heavy equipment, improper fuel storage, vehicle washing operations, and illegal dumping. Improper waste management and hazardous materials storage also pose a significant threat to ground water, and a wide variety of potentially harmful components are involved in the release of these products. Working with owners of sand and gravel operations to implement the following recommendations will greatly reduce the risk of contaminating groundwater.

Sand and Gravel Operation Recommendations - Best Management Practices

- ✓ **Storage of Hazardous Materials** - Ensure that liquid petroleum products and hazardous materials are stored aboveground, on an impervious surface and either in a container or in an aboveground tank within a building, or in an area that has a containment system designed and operated to hold either 10 percent of the total possible storage capacity of all containers, or 110% of the largest container storage capacity whichever is greater. Storage of petroleum products in the pit area should be discouraged.
- ✓ **Disposal of Hazardous Material** - Encourage the training of employees on proper hazardous material disposal and emergency response in the event of spills or leaks. Refer to the attached list of resources for more information on hazardous material BMPs.
- ✓ **Equipment Maintenance** - Suggest the following maintenance practices:
 - ❖ Perform equipment maintenance and repairs outside the pit area
 - ❖ Repair hydraulic equipment as soon as leaks are detected
 - ❖ Develop a spill prevention plan and clean up spills immediately
- ✓ **Vehicle Washing** - Managing vehicle washing near drinking water sources is important because the wash water can percolate through soil and contaminate ground water. DEP Water Pollution Control regulations 314 CMR 5.00 prohibit the discharge of wash water into the ground. Coordinate efforts with the local Board of Health and Fire Department to monitor the progress of any remedial action taken in response to enforcement action issued by DEP.
- ✓ **Erosion and Sedimentation Control** - Without appropriate erosion and sedimentation controls, sand and gravel activities can contribute large amounts of sediment to storm water runoff. Erosion can be controlled by planting temporary fast-growing vegetation, such as grasses and wild flowers. Other measures include sediment traps and basins; sediment fences; wind erosion controls; and sediment, chemical, and nutrient control.
- ✓ **Dust Control** - Control dust to prevent nuisance and public hazard; use water rather than calcium chloride; never use oil!
- ✓ **Retention Basins** - Use retention basins to trap fine material; clean out regularly
- ✓ **Reclaim Excavations** - Work with the owner in developing a plan for reclamation. Reclamation should include:
 - ❖ leaving surface soil which can sustain vegetation, and plant with native vegetation to prevent erosion
 - ❖ grade slopes to the natural angle so as to prevent erosion
 - ❖ restore original, natural drainage

Sand and Gravel Operation Recommendations - Illegal Dumping

- ✓ **Monitor Illegal Dumping** - Request that the facility owner inspect property for signs of illegal dumping, and coordinate efforts to properly dispose of material.

Sand and Gravel Operation Recommendations - Excavation Depth: The Town of Medfield, through its Groundwater Protection District Bylaw, prohibits earth removal unless the final grading is greater than four (4) feet above the historic high groundwater mark. This bylaw applies to new or expanded uses.

- ✓ **Monitor Excavation Depth** - The Medfield Water Department, in conjunction with the Millis Water Department, and Millis Planning Board, should monitor excavation depths to ensure that sand and gravel operations do not violate the Town of Millis's Groundwater Protection District Bylaw by excavating below four (4) feet of the historic high groundwater mark

7. Comprehensive Wellhead Protection Planning - Protection planning prevents drinking water contamination by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are numerous resources available to help communities in developing a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ **Develop A Land Acquisition Plan** - Land acquisition projects protect water supplies by limiting the land development potential. Acquisitions can be accomplished by water systems through conservation restrictions, land banking, land purchases and land donations. Sample conservation restrictions are available at: <http://www.state.ma.us/dep/brp/dws/>. Future development of Zone II is a major concern. The Department recommends that the water district acquire Zone II land closest to the Zone I or land that is subject to high-risk development (refer to Developing a local Wellhead Protection Plan).

What are "BMPs?"

Best Management Practices are structural (i.e. oil & grease trap catch basins), nonstructural (i.e. hazardous waste collection days) or managerial measures that are used to protect and improve surface water and groundwater quality.

- ✓ **Local Controls** - Coordinate efforts with local officials in Dover, Millis, Sherborn, and Walpole to compare existing controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://www.state.ma.us/dep/brp/dws/>.
- ✓ **Inspection Program** - Develop and implement an Inspection Program for facilities that generate, use, store, or dispose of hazardous/toxic materials. Local Board of Health and Building Inspectors working on inspections often include floor drain and underground storage tanks. Local inspection programs can provide valuable technical assistance on Best Management Practices.

Refer to Table 2 and Appendix 2 for more information about other land uses and activities that may be potential sources of contamination.

Identifying potential contaminant sources is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential contaminant sources are identified, specific recommendations like those below should be used to better protect the Medfield wells.

Section 3: Source Water Protection

Implementing source protection measures and Best Management Practices (BMPs) will reduce the Medfield Water Department System's susceptibility to contamination. Additional source protection recommendations are listed in Table 3 and the Key Issues above.

Medfield Water Department, in conjunction with the Town, is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- ❖ Adopting land use controls that meet DEP's Drinking Water Regulations
- ❖ Sending letters to surrounding communities requesting protection of Zone II areas that extend across town boundaries
- ❖ Incorporating Best Management Practices for stormdrain maintenance

- ❖ Partnering with EPA in Department of Public Work Facilities Best Management Practices

Appendix 1 includes specific recommendations for each of the following:

➤ **Partner with Local Businesses:**

Since many small businesses and industries use hazardous materials and produce hazardous waste products, it is essential to educate the business community about drinking water protection. Encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

➤ **Provide Outreach to the Community:**

Public education and community outreach ensure the long-term protection of drinking water supplies. Awareness often generates community cooperation and support. Residents and business owners are more likely to change their behavior if they know where the wellhead protection recharge area is located; what types of land uses and activities pose threats; and how their efforts can enhance protection.

➤ **Plan for the Future:**

One of the most effective means of protecting water supplies is planning, such as the adoption of local controls to protect watersheds and ground water. These controls may include health regulations, general ordinances, and zoning bylaws that prohibit potential sources of contamination from wellhead protection areas.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. These recommendations are only part of your ongoing local drinking water source protection.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Section 4: Additional Resources Available for Source Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The assessment and protection recommendations in this SWAP report are provided as a tool to spur community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

The Medfield Water Department should supplement this SWAP report with local information on potential sources of contamination and land uses. To aid in the protection of the wells, local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Funding Resources:

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing Water Supply Source Protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. For additional information, please refer to the program fact sheet from this year. Please note: each spring DEP posts a new Request for Response for the Grant program (RFR).

The Aquifer Land Acquisition Program protects both surface and groundwaters used for drinking water purposes. Land acquisition is considered to be the single best way to protect a drinking water supply. Land acquisitions for water supply protection purposes include outright purchases, conservation restrictions, land donations, and interest in land taken by eminent domain. These funds will be available to water suppliers and municipal governments through the process described below. All publicly owned water suppliers, districts, or municipalities are invited to express an interest by submitting a Statement of Need covering any land purchase expected to be made to protect a public water supply that can be completed by June 30, 2002. The Department of Environmental Protection will select respondents of the Draft Statement of Need to submit a completed Final Statement of Need based on DEP land acquisition standard operating procedures, ability to use the funds by June 30, 2002, and other environmental criteria as determined necessary by the Secretary and Commissioner.

For further information on the Aquifer Land Acquisition Program, contact Joseph McNealy, Director of Program Development, Department of Environmental Protection, at (617) 556-1068.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, Aquifer Land Acquisition Program, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm>.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Section 5: Appendices

1. Protection Recommendations
2. Regulated Facilities within the Water Supply Protection Area
3. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
4. Additional Documents on Source Protection in Medfield

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES (Elm Street Wells & Well #6)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Main Street Wells)	Monitor non-water supply activities in Zone Is, and investigate options for removing these activities.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Monitor non-water supply activities in Zone Is, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21 (2)?	YES	Monitor activities in Zone II to assure compliance with local wellhead protection controls.
Do neighboring communities protect the Zone II areas extending into their communities?	Unknown	Follow-up on request that municipal officials in Dover, Millis, Sherborn, and Walpole develop land use restrictions that meet 310 CMR 22.21(2).
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish a committee that includes representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	Uncertain	Coordinate efforts with the Board of Health and Fire Department to conduct inspections. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc .
Does the PWS provide wellhead protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report and annual tours of the wells. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN THE MEDFIELD WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
134001	COMARK CORP	93 WEST ST	MEDFIELD	HANDLER	Small Quantity Generator
33252	RICKS AUTO BODY INC	100 N MEADOWS RD	MEDFIELD	HANDLER	Small Quantity Generator
33952	COLONIAL SER CTR SQ UIER SS NUMBER PKW	461 MAIN ST	MEDFIELD	HANDLER	Small Quantity Generator
34497	MILLER STUART ASSOC ESCO TOOL	50 PARK ST	MEDFIELD	HANDLER	Small Quantity Generator
34501	MEDFIELD COLLISION	98R ADAMS ST	MEDFIELD	HANDLER	Very Small Quantity Generator
134000	WHITE SAM & SONS	16 WESTMILL ST	MEDFIELD	HANDLER	Very Small Quantity Generator
134000	WHITE SAM & SONS	16 WESTMILL ST	MEDFIELD	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
38085	SUNOCO SERVICE STATION	209 EAST MAIN ST	MEDFIELD	HANDLER	Very Small Quantity Generator
38085	SUNOCO SERVICE STATION	209 EAST MAIN ST	MEDFIELD	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
308181	FORM CENTERLESS GRINDING INC	106 ADAMS ST	MEDFIELD	HANDLER	Small Quantity Generator
308181	FORM CENTERLESS GRINDING INC	106 ADAMS ST	MEDFIELD	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
308181	FORM CENTERLESS GRINDING INC	106 ADAMS ST	MEDFIELD	HANDLER	Small Quantity Generator

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
308181	FORM CENTERLESS GRINDING INC	106 ADAMS ST	MEDFIELD	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
33952	COLONIAL SERVICE CENTER, INCORPORATED	NORTH AND MAIN ST	MEDFIELD	FUEL DISPENSER	Fuel Dispenser
136180	CUMBERLAND GULF #118659	560 MAIN ST	MEDFIELD	FUEL DISPENSER	Fuel Dispenser
182613	ANTONS CLEANERS INC	527 MAIN ST	MEDFIELD	HANDLER	Very Small Quantity Generator
182613	ANTONS CLEANERS INC	527 MAIN ST	MEDFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
320170	DON GRAVES SIGN INC	67 WEST ST	MEDFIELD	HANDLER	Very Small Quantity Generator
320137	TEXACO SERVICE STATION	26 SPRING ST	MEDFIELD	HANDLER	Very Small Quantity Generator
207995	MOBIL OIL CORP	MAIN & NORTH STS	MEDFIELD	HANDLER	Very Small Quantity Generator
308181	FORM CENTERLESS GRINDING INC	106 ADAMS ST	MEDFIELD	HANDLER	Small Quantity Generator
38085	SUNOCO #0006-1457	209 EAST MAIN ST	MEDFIELD	FUEL DISPENSER	Fuel Dispenser
318141	BAYER CORP	63 NORTH ST	MEDFIELD	HANDLER	Large Quantity Generator
132696	MEDFIELD STATE HOSPITAL	45 HOSPITAL RD	MEDFIELD	HANDLER	Very Small Quantity Generator
132696	MEDFIELD STATE HOSPITAL	45 HOSPITAL RD	MEDFIELD	FUEL DISPENSER	Very Small Quantity Generator

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132696	MEDFIELD STATE HOSPITAL	45 HOSPITAL RD	MEDFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
132696	MEDFIELD STATE HOSP	45 HOSPITAL RD	MEDFIELD	HANDLER	Very Small Quantity Generator
132696	MEDFIELD STATE HOSPITAL	45 HOSPITAL RD	MEDFIELD	FUEL DISPENSER	Fuel Dispenser
182729	LA SUPREMA DRY CLEANERS	24 PARK STREET	MEDFIELD	HANDLER	Very Small Quantity Generator
40007	MEDFIELD TRANSFER STATION	NORTH MEADOWS ROAD	MEDFIELD	HANDLER	NON-NOTIFIER HW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
330646	MEDFIELD DEPARTMENT OF PUBLIC WORKS	NORTH MEADOWS ROAD	MEDFIELD	HANDEL	Very Small Quantity Generator
330646	MEDFIELD DEPARTMENT OF PUBLIC WORKS	NORTH MEADOWS ROAD	MEDFIELD	HANDEL	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
330646	MEDFIELD DEPARTMENT OF PUBLIC WORKS	NORTH MEADOWS ROAD	MEDFIELD	FUEL DISPENSER	BELOW AQ REGULATED THRESHOLDS
53527	MEDFIELD TOWN OF	NORTH MEADOWS ROAD	MEDFIELD	HANDEL	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
40007	MEDFIELD COMPOST SITE	NORTH MEADOWS RD	MEDFIELD	COMPOST	REGISTRATION
246924	SAM WHITE & SONS COMPOST SITE	16 WEST MILL ST	MEDFIELD	COMPOST	REGISTRATION
348613	RANDYS AUTOMOTIVE SERVICE INC	26 SPRING ST	MEDFIELD	FUEL DISPENSER	Fuel Dispenser
330646	MEDFIELD DEPARTMENT OF PUBLIC WORKS	NORTH MEADOWS ROAD	MEDFIELD	HANDEL	Very Small Quantity Generator

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
330646	MEDFIELD DEPARTMENT OF PUBLIC WORKS	NORTH MEADOWS ROAD	MEDFIELD	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
330646	MEDFIELD DEPARTMENT OF PUBLIC WORKS	NORTH MEADOWS ROAD	MEDFIELD	FUEL DISPENSER	BELOW AQ REGULATED THRESHOLDS
53527	MEDFIELD TOWN OF	NORTH MEADOWS ROAD	MEDFIELD	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
40007	MEDFIELD COMPOST SITE	NORTH MEADOWS RD	MEDFIELD	COMPOST	REGISTRATION
246924	SAM WHITE & SONS COMPOST SITE	16 WEST MILL ST	MEDFIELD	COMPOST	REGISTRATION
348613	RANDYS AUTOMOTIVE SERVICE INC	26 SPRING ST	MEDFIELD	FUEL DISPENSER	Fuel Dispenser
329731	GAF MATERIALS CORPORATION	60 CURVE STREET	MILLIS	TURA REPORTER	LARGE QUANTITY TOXIC USER
329731	GAF MATERIALS CORP	60 CURVE STREET	MILLIS	HANDLER	Small Quantity Generator
329731	GAF MATERIALS CORP	60 CURVE STREET	MILLIS	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
40095	MILLIS COMPOST SITE	ISLAND RD & ENVIRONMENTAL DR	MILLIS	COMPOST	REGISTRATION
265505	MILLIS DPW	7 WATER ST	MILLIS	FUEL DISPENSER	Fuel Dispenser
40095	MILLIS TRANSFER STATION	ISLAND ST	MILLIS	TRANSFER STATION	SMALL TRANSFER STATION
40095	MILLIS TRANSFER STATION	ISLAND ST	MILLIS	TRANSFER STATION	SMALL TRANSFER STATION

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
177024	TRESCA BROTHERS SAND & GRAVEL INC	66 MAIN ST	MILLIS	HANDLER	Very Small Quantity Generator
177024	TRESCA BROTHERS SAND & GRAVEL INC	66 MAIN ST	MILLIS	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

UNDERGROUND STORAGE TANKS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
BELL ATLANTIC	26 PLEASANT STREET	MEDFIELD	UTILITIES	1000	DIESEL
CUMBERLAND FARMS GULF	560 MAIN & SPRING STREET	MEDFIELD	GAS STATION	8000	GASOLINE
CUMBERLAND FARMS GULF	560 MAIN & SPRING STREET	MEDFIELD	GAS STATION	8000	GASOLINE
CUMBERLAND FARMS GULF	560 MAIN & SPRING STREET	MEDFIELD	GAS STATION	8000	GASOLINE
MOBIL STATION	MAIN & NORTH STREET	MEDFIELD	SERVICE STATION	10000	GASOLINE
MOBIL STATION	MAIN & NORTH STREET	MEDFIELD	SERVICE STATION	8000	GASOLINE
MOBIL STATION	MAIN & NORTH STREET	MEDFIELD	SERVICE STATION	8000	GASOLINE
MOBIL STATION	MAIN & NORTH STREET	MEDFIELD	SERVICE STATION	6000	GASOLINE
MOBIL STATION	MAIN & NORTH STREET	MEDFIELD	SERVICE STATION	1000	WASTE OIL
TEXICO	26 SPRING STREET	MEDFIELD	SERVICE STATION	10000	GASOLINE
TEXICO	26 SPRING STREET	MEDFIELD	SERVICE STATION	10000	GASOLINE
TEXICO	26 SPRING STREET	MEDFIELD	SERVICE STATION	10000	GASOLINE
TEXICO	26 SPRING STREET	MEDFIELD	SERVICE STATION	10000	GASOLINE
TEXICO	26 SPRING STREET	MEDFIELD	SERVICE STATION	1000	
TEXICO	26 SPRING STREET	MEDFIELD	SERVICE STATION	550	

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
SUNOCO	209 E. MAIN STREET	MEDFIELD	SERVICE STATION	8000	GASOLINE
SUNOCO	209 E. MAIN STREET	MEDFIELD	SERVICE STATION	8000	GASOLINE
SUNOCO	209 E. MAIN STREET	MEDFIELD	SERVICE STATION	8000	GASOLINE
SUNOCO	209 E. MAIN STREET	MEDFIELD	SERVICE STATION	8000	GASOLINE
SUNOCO	209 E. MAIN STREET	MEDFIELD	SERVICE STATION	1000	FUEL OIL
SUNOCO	209 E. MAIN STREET	MEDFIELD	SERVICE STATION	1000	WASTE OIL
MEDFIELD STATE HOSPITAL	45 HOSPITAL RD	MEDFIELD	RESIDENTIAL FACILITY	30000	FUEL OIL
MEDFIELD STATE HOSPITAL	45 HOSPITAL RD	MEDFIELD	RESIDENTIAL FACILITY	30000	FUEL OIL
MEDFIELD STATE HOSPITAL	45 HOSPITAL RD	MEDFIELD	RESIDENTIAL FACILITY	30000	FUEL OIL
MEDFIELD STATE HOSPITAL	45 HOSPITAL RD	MEDFIELD	RESIDENTIAL FACILITY	10000	FUEL OIL
MEDFIELD STATE HOSPITAL	45 HOSPITAL RD	MEDFIELD	RESIDENTIAL FACILITY	2000	FUEL OIL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Medfield Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0003142	461 Main Street	Medfield	Oil
3-0003830	26 Spring Street	Medfield	Oil
3-0013400	105 Adams Street	Medfield	Oil and Hazardous Material
3-0013401	105 Adams Street	Medfield	Oil and Hazardous Material
3-0013403	105 Adams Street	Medfield	Hazardous Material
3-0015514	527 Main Street	Medfield	Hazardous Material
3-0002548	Water Street	Millis	Hazardous Material
3-0003323	40 Railroad Avenue	Millis	Oil
3-0004033	66 Main Street	Millis	Oil
3-0004704	7 Water Street	Millis	Oil
3-0011836	7 Water Street	Millis	Oil

For more location information, please see the attached map. The map lists the release sites by RTN.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Merrimac Water Department

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Merrimac Water Department
<i>PWS Address</i>	10 West Main Street
<i>City/Town</i>	Merrimac
<i>PWS ID Number</i>	3180000
<i>Local Contact</i>	Linda Soucy - Superintendent
<i>Phone Number</i>	(978) 346-8311

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures.

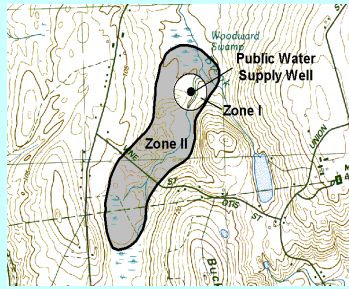
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

Zone II #: 403

Susceptibility: Moderate

Well Names	Source IDs
East Main Street Tubular Wells	3180000-01G
East Main Street GP Well	3180000-03G
East Main Street 8" GD Replacement Wells	3180000-04G

Zone II #: 524

Susceptibility: High

Well Names	Source IDs
Sargents Pit Wells	3180000-02G

The Merrimac Water Department (Merrimac) maintains and operates four public water supply sources. Merrimac's sources are located within the Merrimack River basin. The East Main Street Tubular Wells (01G), East Main Street GP Well (03G), and East Main Street 8" GD Replacement Wells (04G) wellhead protection area is located entirely within Merrimac. The Sargents Pit Wells (02G) wellhead protection area is in Merrimac and Newton, New Hampshire. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map to view the boundaries of the Zone IIs.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The Zone IIs for Merrimac are primarily a mixture of forest and residential land uses, with a small portion consisting of agricultural activities (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Agricultural Activities
3. Residential Land Uses
4. Transportation Corridors
5. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the Sargents Pit Wells is high, based on the presence of at least one high threat land use within the water supply protection area, as seen in Table 2. The overall ranking of susceptibility to contamination for the East Main Street wells is moderate, based on the presence of at least one moderate threat land use within the water supply protection area.

1. Activities in Zone Is – The Zone I for the East Main Street GP Well and East Main Street 8” GD Replacement Wells is a 400 foot radius around each well. The Zone I for the East Main Street Tubular Wells and Sargents Pit Wells is a 250 foot radius around each well. Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for Merrimac's Sargents Pit Well (02G) contains an access road for an adjacent farm and compost operation.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.



2. Agricultural Activities – Agricultural land uses exist within the Newton, New Hampshire portion of the water supply protection area. Wood chip coloring operations, pesticides, and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, underground and aboveground storage tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills. Agricultural activities can also be a potential source of microbial contamination from improper manure management.

Agricultural Recommendations:

- ✓ Work with farmers to make them aware of the water supply and to encourage the use of a U.S. Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ The Massachusetts Department of Food & Agriculture's booklet titled "On-Farm Strategies to Protect Water Quality - An Assessment & Planning Tool for Best Management Practices" (December 1996) describes technical and financial assistance programs related to the control of erosion and to the management of nutrients, pests, manure, grazing and irrigation.
- ✓ Work with farmers to ensure that pesticides, fertilizers and manure are being stored within a structure designed to prevent runoff.
- ✓ Determine if wood chip coloring operation is a prohibited activity under Merrimac's existing land use controls.

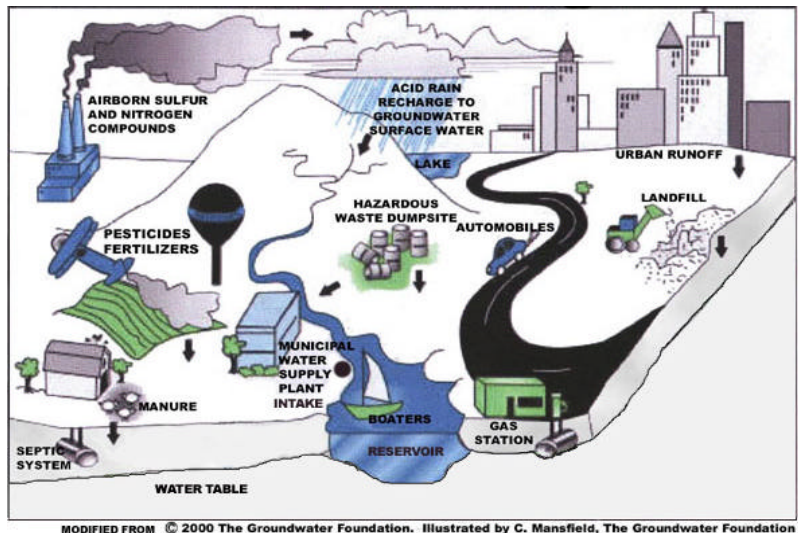


Figure 1: Sample watershed with examples of potential sources of contamination

3. Residential Land Uses – Residential areas are common throughout the Zone IIs. Some of the areas have public sewers, and some use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

**When you wash your car in the driveway,
Remember
you're not just washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

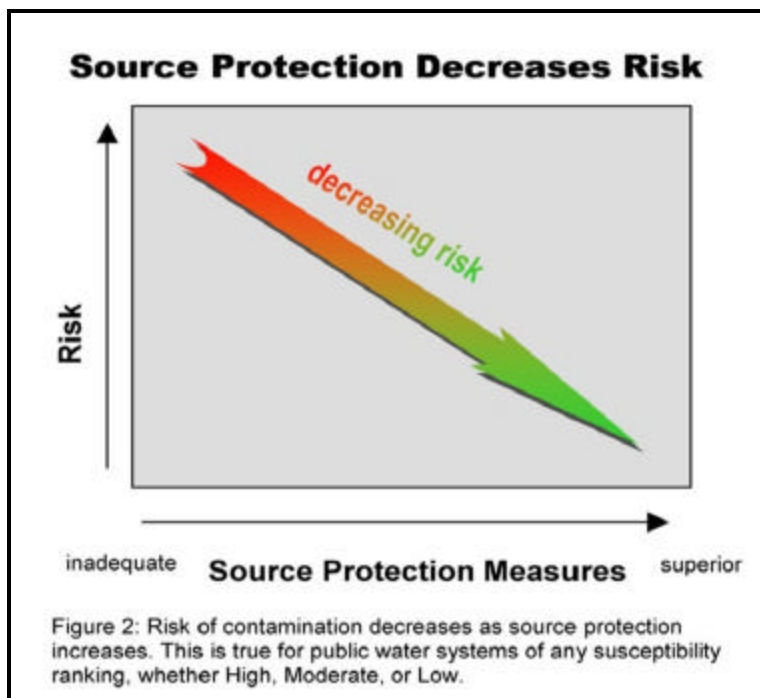
The Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108

- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

4. Transportation Corridors - Transportation corridors and other paved and unpaved local roads cross through the water supply protection areas. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources*
Agricultural				
Manure Storage or Spreading	1	H	524	Improper handling of manure (microbial contaminants)
Commercial				
Gas Stations	1	H	524	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	1	H	524	Automotive fluids and solvents: spills, leaks, or improper handling
Residential				
Fuel Oil Storage (at residences)	Numerous	M	Both	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	Both	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	Numerous	M	524	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous				
Composting Facilities	1	L	524	Storage and improper handling of organic material, animal waste, and runoff
Land Application of Sewage Sludge	1	M	524	Improper management of sludge and runoff (metals)
Transportation Corridors	2	M	Both	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Very Small Quantity Hazardous Waste Generators	1	L	524	Spills, leaks, or improper handling or storage of hazardous materials and waste
Water Treatment Sludge Lagoons	1	M	403	Improper management of sludge and wastewater

Table 2 Notes:

- When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
- For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
- For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins.

Transportation Corridor Recommendations:

- ✓ Wherever possible, ensure that drains discharge stormwater outside of the Zone I.
- ✓ Identify stormwater drainage systems along transportation corridors. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained. Review storm drainage maps with emergency response teams.
- ✓ Work with the Town and State to best manage stormwater in the Zone II. Best management practices include street sweeping, vegetative swales, and regular catch basin inspection, cleaning and maintenance.

5. Protection Planning – Currently, the Town of Merrimac is in the process of reviewing existing water supply protection controls. When the process is complete, they will be reviewed to see that they meet DEP's Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan".
- ✓ Coordinate efforts with the Town of Newton, New Hampshire to include Merrimac's source protection areas in local wellhead protection controls. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Zone II are included in Table 2. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Actively enforcing existing wellhead protection control
- Providing household hazardous waste collection facility
- Providing wellhead protection information through municipal newsletter

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Develop and implement a Wellhead Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone IIs. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Additional Documents on Source Protection

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- 1 Reduces Risk to Human Health
- 2 Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- 3 Supports municipal bylaws, making them less likely to be challenged
- 4 Ensures clean drinking water supplies for future generations
- 5 Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with “Public Drinking Water Supply” Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Continue monitoring non-water supply activities (use of access road by trucks and farm equipment) in Zone I of Sargents Pit Well (02G).
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO	Work with the Planning Board to compare land use controls to see that they meet current requirements of 310 CMR 22.21 (2). Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	NO	Work with the Town of Newton, New Hampshire to include Merrimac’s Zone II in their wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow “Developing a Local Wellhead Protection Plan” available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal “Emergency Response Plan” to deal with spills or other emergencies?	NO	Implement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens’ groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	For more guidance see “Hazardous Materials Management: A Community's Guide” at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	SOME	Currently, outreach is done through the annual Consumer Confidence Report and a municipal newsletter. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN MERRIMAC WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
	ESTABROOK'S GARAGE	26 S MAIN ST	NEWTON, NEW HAMPSHIRE	HANDLER	GENERATOR OF HAZARDOUS WASTE

UNDERGROUND STORAGE TANKS

FACILITY NAME	STREET ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
ROUTE 108 GENERAL STORE	21 S MAIN ST	NEWTON, NEW HAMPSHIRE	GAS STATION	20000	GASOLINE

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Merrimac Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
--	26 S Main St	Newton, NH	--
--	21 S Main St	Newton, NH	--

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Methuen Water Division

What is SWAP?

The Source Water Assessment and Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Methuen Water Division
<i>PWS Address</i>	25 Burnham Road
<i>City/Town</i>	Methuen , Massachusetts 01844
<i>PWS ID Number</i>	3181000
<i>Local Contact</i>	Michael Sheehan
<i>Phone Number</i>	(978) 794-3286

Introduction

We are all concerned about the quality of the water we drink. Public wells, reservoirs and rivers may be threatened by potential contaminant sources, including storm runoff, spills, and improper disposal of hazardous materials. Citizens, businesses and local officials can work together to better protect these drinking water sources.

Purpose of this report:

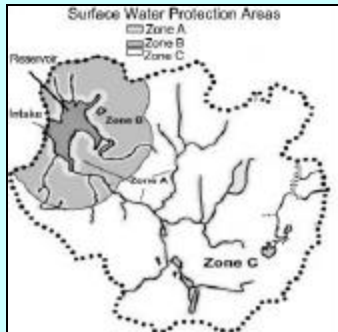
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

This report includes the following sections:

1. Description of the Water System
2. Land Uses in the Watershed
3. Source Water Protection
4. Emergency Planning Recommendations
5. Additional Resources Available for Source Water Protection
6. Appendices

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Section 1: Description of the Water System

<i>Source Name</i>	<i>Source ID</i>	<i>Susceptibility</i>
Merrimack River	3181000-01S	High

The Methuen Water Division (Methuen) withdraws water from the Merrimack River to supply drinking water to the community of Methuen, and provide some water to the town of Salem, New Hampshire, and the Kenwood Water District in Dracut. The Massachusetts Surface Water Quality Standards classify the Merrimack River as a Class B waterway. That means that the water withdrawn for drinking water purposes must be treated.

For current information on monitoring results and treatment or for a copy of the most recent Consumer Confidence Report, please contact the public water system contact person listed above in Table 1. Drinking water monitoring data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Merrimack River Watershed

The Merrimack River flows for 78 miles through New Hampshire and for another 50 miles in Massachusetts, from Lowell to Newburyport and into the Atlantic Ocean. There are 1,200 square miles of watershed in Massachusetts in all or part of 24 communities. Upstream of the Methuen drinking water intake, the following communities are in the Merrimack River watershed: Andover, Tewksbury, Dracut; Lowell; Chelmsford; Tyngsborough; Westford; Dunstable;

Groton; Ayer; Littleton; Harvard; Boxborough; Ashby; and, Ashburnham. Sixteen percent (16%) of the watershed in Massachusetts upstream of the Methuen intake is listed in DEP's Geographic Information System (GIS) databases as protected open space. The other 84% contains a mix of land uses such as residential homes, shopping malls, businesses, industrial processes, transportation corridors, agriculture, utility lines and recreation facilities.

Class B Drinking Water Sources

There are twelve Class B drinking water sources on rivers in Massachusetts, eleven in the urbanized northeast and one in the western part of the State. Five of these sources are located on the Merrimack River. The large watersheds and historically urbanized land uses associated with major rivers makes source protection a challenge at the Class B sources.

A Class B water body source such as the Merrimack River does not have Zone A, B and C protection areas, as do Class A water body sources. For the purposes of the SWAP assessments, a 400 foot setback area along the river and all feeder streams has been delineated for Class B water body sources that is referred to as an "Emergency Planning

Class B River Intakes

Class B water sources do not have Zone A, B and C protection areas as the Class A sources do. For the purposes of this report, an "Emergency Planning Zone" has been delineated. The **Emergency Planning Zone** is the land area within 400 feet of both sides of the river including all tributary streams and surface water bodies.

Zone". Land uses and activities within this zone are of particular concern for source protection and emergency planning because of their proximity to the water supply.

River drinking water sources are particularly susceptible to spills and accidental releases from public and private discharges; accidents related to vehicles, railroads, airports, boats; utility easements; fixed site releases at industrial and public facilities; inappropriate use of pesticides and fertilizers; improper disposal of hazardous household waste; and illegal dumping of a variety of substances.

This assessment has been conducted on the watershed area upstream of the Methuen intake to the state boundary. Potential threats that have been identified in New Hampshire have also been included. In addition, DEP has delineated a 400-foot emergency planning zone (shown on the GIS map that accompanies this report) adjacent to the river and its tributaries, up to the state boundary, for the purpose of this assessment.

This report contains a list of regulated facilities that are located within the watershed. Page 10 of this report contains recommendations for emergency planning.

Section 2: Land Uses in the Protection Areas

The protection area for Methuen is a mixture primarily of residential, commercial, industrial, and forest land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues Include:

1. Activities in Emergency Planning Zone
2. Agricultural Activities
3. Hazardous Materials Manufacture, Storage and Use
4. Transportation Corridors
5. Stormwater Flows
6. Railroad Tracks
7. Transmission Lines
8. Combined Sewer Overflows
9. Recreation (beaches, campgrounds, boating)
10. Golf Courses
11. Road and Maintenance Depots
12. Federal Superfund Site and Oil or Hazardous Material Contamination Sites
13. Residential

1. Activities in Emergency Planning Zone - The Emergency Planning Zone is a 400 foot setback on either side of the river and all tributaries to a Class B river intake. Land use activities within an Emergency Planning Zone may have an impact on surface water sources. Wild animals and domestic pet wastes can carry waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. while septic systems and road runoff can carry these as well as other contaminants.

Emergency Planning Zone Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Monitor and review activities within the Emergency Planning Zone.

2. Agricultural Activities – Agricultural land uses, cropland and pastures, comprise about 5% of the watershed. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, underground and aboveground storage tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills. Agricultural activities can also be a potential source of microbial contamination from improper manure management.

Agricultural Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Work with farmers to make them aware of the water supply and to encourage the use of a U.S. Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ The Massachusetts Department of Food & Agriculture’s booklet titled “On-Farm Strategies to Protect Water Quality - An Assessment & Planning Tool for Best Management Practices” (December 1996) describes technical and financial assistance programs related to the control of erosion and to the management of nutrients, pests, manure, grazing and irrigation.
- ✓ Work with farmers to ensure that pesticides, fertilizers and manure are being stored within a structure designed to prevent runoff.

What are BMPs?

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

3. Chemical and Hazardous Materials Manufacture, Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in USTs and ASTs. Although many facilities within the watershed use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.
- ✓ Monitor water quality in the Merrimack River.
- ✓ Continue to plan and prepare for spills by communicating with facilities and conducting drills.

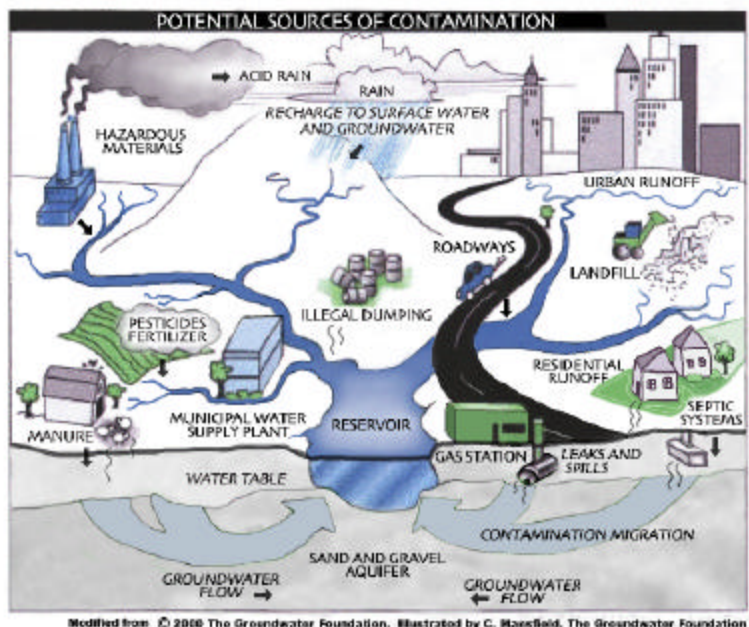
4. Transportation Corridors - Route 3, Route 495 and other paved and unpaved local roads and highways cross through the watershed. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. (Continued on page 8)

**When you fertilize the lawn,
Remember
you're not *just* fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108



Modified from: © 2008 The Groundwater Foundation. Illustrated by C. Maxfield, The Groundwater Foundation
Figure 1: Sample watershed with examples of potential sources of contamination

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Uses in the Watershed

For more information, refer to Appendix B: Regulated Facilities.

Land Uses	Quantity	Threat	Potential Sources of Contamination*
Agricultural			
Fertilizer Storage or Use	Few	M	Leaks, spills, improper handling, or over-application of fertilizers
Livestock Operations	1	M	Improper handling of manure (microbial contaminants)
Manure Storage or Spreading	1	H	Improper handling of manure (microbial contaminants)
Pesticide Storage or Use	Few	H	Leaks, spills, improper handling, or over-application of pesticides
Commercial			
Airports	1	H	Spills, leaks, or improper handling of fuels, de-icers, salt, and other hazardous chemicals
Body Shops	2	H	Improper management of vehicle paints, solvents, and primer products
Gas Stations	16	H	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	7	H	Spills, leaks, or improper handling of automotive fluids, and solvents
Bus and Truck Terminals	2	H	Spills, leaks, or improper handling of fuels and maintenance chemicals
Car/Truck/Bus Washes	1	L	Improper management of vehicle wash water; soaps; oils; greases; metals; salts
Cemeteries	Few	M	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Dry Cleaners	1	H	Spills, leaks, or improper handling of solvents and wastes
Funeral Homes	Few	L	Spills, leaks, or improper handling of hazardous chemicals
Furniture Stripping and Refinishing	1	H	Spills, leaks, or improper handling of hazardous chemicals
Golf Courses	8	M	Over-application or improper handling of fertilizers or pesticides
Laundromats	1	L	Improper management of wash water
Printer and Blueprint Shops	1	M	Spills, leaks, or improper handling or storage of printing inks and chemicals

Land Uses	Quantity	Threat	Potential Sources of Contamination
Commercial			
Railroad Tracks and Yards	4	H	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Sand and Gravel Mining/Washing	Few	M	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial			
Asphalt, Coal Tar, and Concrete Plants	1	M	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Chemical Storage or Manufacture	Numerous	H	Spills, leaks, or improper handling or storage of chemicals or process waste
Food Processors	2	L	Spills, leaks, or improper handling or storage of cleaners and other chemicals; microbial contaminants
Hazardous Materials Storage	Numerous	H	Spills, leaks from improper handling or storage of hazardous waste
Industrial Parks	Few	H	Leaks, spills of chemicals from improper handling or storage
Nuclear Power Plants	1	H	Spills, leaks, or improper handling of radioactive materials
Plastic Manufacturers	1	H	Spills, leaks, or improper handling or storage of solvents, resins and process wastes
Residential			
Fuel Oil Storage (at residences)	100+	M	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	100+	M	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	100+	M	Microbial contaminants, improper disposal of hazardous chemicals
Miscellaneous			
Aboveground Storage Tanks	Few	M	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	100+	L	Microbial contaminants
Combined Sewer Overflows	Few	L	Microbial and non-microbial contaminants including industrial wastewater; improper disposal of hazardous wastes
Fishing/Boating	100+	L	Fuel and other chemical spills, microbial contaminants
Landfills and Dumps	2	H	Seepage of leachate
Large Quantity Hazardous Waste Generators	14	H	Spills, leaks, or improper handling or storage of hazardous materials and waste
Military Facilities (Past And Present)	1	H	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump sites
NPDES Locations	2	L	Improper disposal of hazardous material and wastes

Land Uses	Quantity	Threat	Potential Sources of Contamination
Oil or Hazardous Material Sites	100+	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	Spills, leaks, or improper handling or storage of de-icing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	Few	M	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	28	M	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/Retention Basins	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Superfund Sites	1	H	Spills, leaks, or improper handling or storage of oil or hazardous materials and waste
Transmission Line Rights-of-Way	6	L	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	3	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	100+	H	Spills, leaks, or improper handling of stored materials
Utility Substation Transformers	1	L	Spills, leaks, or improper handling of chemicals and other materials including PCBs
Very Small Quantity Hazardous Waste Generators	100+	L	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/Recycling Stations	3	M	Improper management, seepage, and runoff of water contacting waste materials
<p>Notes:</p> <ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities. 3. For information about Oil or Hazardous Materials Sites, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - Where there are two rankings, the first is for ground water, the second for surface water. The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>			

De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins. The steep topography of the watershed results in application of de-icing materials to protect public health and safety by keeping the roads passable.

Transportation Corridor Recommendations:
Work with communities within the Merrimack watershed to:

- ✓ Establish vegetated buffers along roads and parking areas to provide some filtration of contaminants.
- ✓ Encourage regular street sweeping. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.
- ✓ Conduct emergency drills to be ready for spills.
- ✓ Regularly inspect the watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ Work with the City and State to have catch basins inspected, maintained, and cleaned on a regular schedule.

5. Stormwater Flows - Stormwater from roads and commercial development, such as malls in Nashua, New Hampshire, flows directly into the Merrimack River and its

tributaries. Stormwater may contain debris, chemicals, bacteria, and nutrients that can impact water quality in the river. Spills can enter the river through stormwater flows.

Stormwater Flows Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Encourage parking lot sweeping in commercial areas.
- ✓ Conduct routine testing for bacteria in river after storms.
- ✓ Continue to plan and prepare for spills.
- ✓ If storm drainage maps are available, review the maps with emergency response teams.

6. Railroad Rights-of-Way - Railroad tracks are located along the bank of the Merrimack River. Railroad Rights-of-Way are potential sources of contamination because of the possibility of spills of transported materials, chemical releases during track maintenance or the over-application or improper handling of herbicides during rights-of-way maintenance.

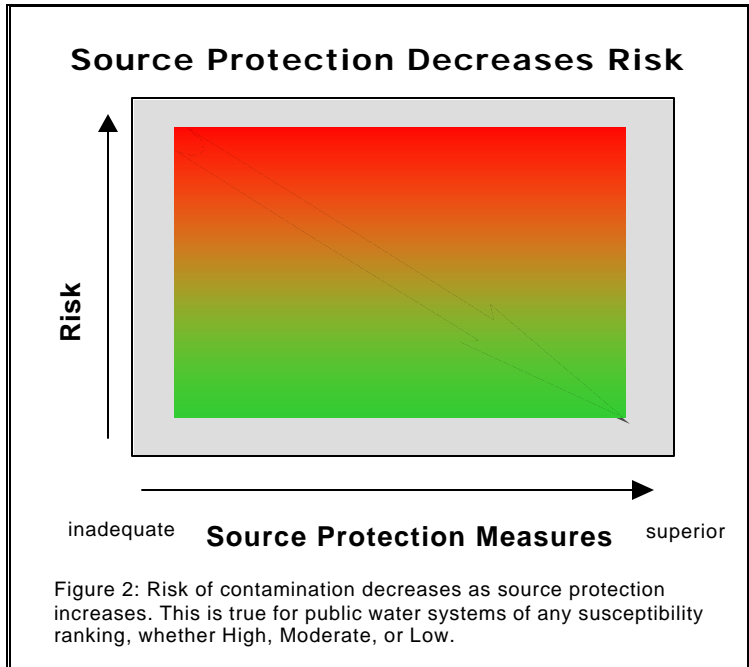
The Rights-of-Way Management Regulations (333 CMR 11.00) were designed to minimize any potential harmful effects of herbicides used

**When you wash your car in the driveway,
Remember
you're not just washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Water Street Boston, MA 02108



for vegetation control along Rights-of-Way in Massachusetts. The regulations promote the use of an integrated pest management (IPM) approach to vegetation control and require application setback distances to protect drinking water sources and other environmentally sensitive areas. Utilities must submit a Vegetation Management Plan (VMP) and a Yearly Operating Plan (YOP) to the Mass. Department of Food and Agriculture for approval and to the municipalities within which herbicide application is proposed.

Railroad Rights-of-Way Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Review the utility's YOP to ensure that BMPs for herbicide applications are in place.
- ✓ Plan for spills and conduct emergency response drills to test procedures.

7. Transmission (Utility) Lines - Transmission lines run throughout the watershed. These are potential sources of contamination because of the possibility of over-application or improper handling of herbicides during rights-of-way maintenance.

Transmission (Utility) Lines Recommendation:

Work with communities within the Merrimack watershed to:

- ✓ Monitor the YOP for pesticide applications.

8. Combined Sewer Overflows (CSOs) - Overflows from the Nashua, New Hampshire sewer system have the potential to cause microbial and non-microbial contaminants to enter the river during high stormwater flows.

Combined Sewer Overflows Recommendation:

Work with communities within the Merrimack watershed to:

- ✓ Continue working with existing committees and legislators on CSOs.

9. Recreation (beaches, campgrounds, boating) - the Merrimack River is a popular regional water resource and is used extensively for boating and fishing.

Other recreational uses include beaches and campgrounds along the shoreline.

Recreation Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Post water supply awareness signs along the banks of the river, at access points, and at the Methuen Water Division river intake.
- ✓ Incorporate drinking water protection education into community events.
- ✓ Develop a boater education program that address issues specific to boating and source protection.
- ✓ Encourage boaters and other users to report spills.

10. Golf Courses - There are six golf courses within the assessment area. Potential contaminants include the over-application or improper handling of pesticides and fertilizers. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Courses Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Encourage the golf course grounds manager to incorporate an Integrated Pest Management (IPM) approach into their grounds maintenance program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote Best Management Practices (BMPs) for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Contact owners/operators about water supply awareness and protection.

11. Road and Maintenance Depots - Potential sources of contamination in state and municipal facilities can result from accidental dumping, spills, leaks, vehicle washing operations, or from wastewater treatment. Waste management

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

and product storage pose the greatest threats with a wide variety of potentially harmful contaminants.

Road and Maintenance Depots Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA-sponsored program, visit their website at <http://www.epa.gov/region1/steward/neeat/muni/index.html>. Encourage road and maintenance depots to develop best management practices to ensure proper salt storage, proper maintenance of facilities and good housekeeping practices.
- ✓ Salt pile structures should be adequately sized to allow for the loading and unloading of salt within the structure. Review the Department of Environmental Protection's Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.
- ✓ Encourage proper storage of materials at these facilities. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.

12. Presence of Federal Superfund Site and Oil or Hazardous Material Contamination Sites – The watershed for the Merrimack River contains a United States Environmental Protection Agency (USEPA) Superfund Site that is

associated with DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 2-0000136. The watershed within the Town of Methuen also contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 3-0015073 and 3-0016515. Refer to the attached maps and Appendix B for more information on these sites, and for information on DEP Tier Classified Oil and/or Hazardous Material Release Sites within the watershed for the Merrimack River.

Federal Superfund Site and Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

Information about DEP Tier Classified Oil or Hazardous Material Release Sites can be obtained at DEP's Bureau of Waste Site Cleanup's web site, www.state.ma.us/dep/bwsc.

13. Residential - Over 30% of the assessment area consists of residential land uses. If managed improperly, household hazardous waste, septic systems, lawn care and pet waste can all contribute to ground and surface water contamination. Household hazardous wastes include automotive wastes, paints, solvents and other substances that should be disposed of properly at a municipal collection site. If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Improperly applied fertilizers and pesticides can wash off lawns and into surface waters. Pet waste may contain bacteria, parasites or viruses that are health risks.

- **Septic Systems** - Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Residential Land Use Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Control residential growth on undeveloped land.
- ✓ See www.state.ma.us/envir/ to obtain information on the build-out analyses for communities into which the watershed extends.
- ✓ Educate residents on how to protect water supplies. Distribute the fact sheet *Residents Protect Drinking Water* available in Appendix A and at www.mass.gov/dep/brp/dws/protect.htm.
- ✓ Post water supply awareness signs on streets throughout the watershed.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

- ✓ Work with city boards and upstream communities to review and provide recommendations on proposed watershed development.

Other land uses and activities within the emergency planning zone and watershed that are potential sources of contamination are included in Table 2. Refer to Appendix A for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection

Current Land Uses and Source Protection:

As with many water systems, this watershed contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The Methuen Water Division is commended for taking an active role in protecting their drinking water source. Some examples of the staff's good work include the following:

Land Purchase in the Emergency Planning Zone - The City of Methuen has, to date, purchased two parcels of approximately 100 feet of shoreline within the 400 foot setback area along the river. One parcel, site of the former Old Bea's Restaurant, is approximately one half mile upstream of the treatment plant intake; the other parcel is further upstream of the intake on Lowell Boulevard (Route 110).

Emergency Planning and Response - The Water Division works with upstream communities in Massachusetts and New Hampshire on emergency response planning. They have an emergency management committee and coordinate activities with the Massachusetts Emergency Management Agency (MEMA) facility in Tewksbury.

Communication with Other Communities - The Water Division maintains contact with upstream communities, including those in New Hampshire, on a variety of source protection issues.

Section 4: Emergency Planning Recommendations

Prevention

Public water suppliers with a river source may take preventive measures to protect the source from unexpected releases. Here are some suggestions.

1. Title III (Emergency Planning and Community Right-to-Know) of the Superfund Amendments & Reauthorization Act (SARA) of 1986 required that each community **develop a comprehensive emergency response plan**. Suppliers should review the existing plan to ensure that water supply issues are satisfactorily addressed in the plan, that current response personnel and their correct telephone numbers are listed, and that the entire plan is regularly reviewed and updated by community officials.

The community plan, or a separate water supplier plan, should include copies of policies in the event of spills or releases; regulatory notification requirements such as what size spills are required to be reported, who to call, telephone numbers, and what information is required to be reported; map of intakes, tributaries, watershed boundaries, adjacent public wells, and locations of sites where spills or accidental releases could occur.

2. **Identify, map and distribute information** to local emergency responders regarding the locations of intakes on the river, tributaries, watershed boundaries, public wells adjacent to river; chemical use at municipal, state, and industrial facilities in watershed (contact Fire Dept., DEP); locations of stormwater drains and the locations of known dams in the event that they can be manipulated by authorized individuals for contaminant control.

The Fire Dept., Board of Health, Planning Board, Local Emergency Planning Committee (LEPC), DEP and others may have existing information to help with your work. SARA requires companies to work with the community's LEPC if they handle extremely hazardous chemicals in quantities above established thresholds.

3. **Develop a communication list** of contacts at upstream and downstream facilities, dams, as well as other public water suppliers on, or adjacent to, rivers. Notify owners and operators of these facilities about the location of your intake and request, in writing, that you be notified immediately in the event of a chemical spill or unexpected discharge. Take this opportunity to educate others about water supply protection.

4. **Provide comments** to municipal boards in other cities/towns in the watershed about proposed development, land use controls, Best Management Practices (BMPs) for stormwater flow into tributaries, and other issues to avoid future problems.
5. **Post signs** along major roads in watershed which direct the public to call "911" or other appropriate local number in case of spills. Be aware of accident-prone areas and transport routes of chemicals if possible.
6. **Educate** the public, local officials, Civil Defense, local emergency response team, and others about water supply protection issues. Educate businesses about toxic use reduction.
7. **Conduct household hazardous waste collection days** and establish permanent collection sites, away from sensitive watershed areas, for used batteries, paints, motor oil, etc.
8. **Conduct drills**, in coordination with local/regional response teams, to test policies and procedures and to practice responding to various situations. Including businesses, local officials and staff, Fire Departments, Boards of Health, Civil Defense, school administration, and others in planning and implementing the drills will allow for several town or region-wide concerns to be addressed and tested at the same time, including: issuing health advisories, conducting neighborhood and/or school evacuations, and evaluating the town's communication system (both making responders aware of the emergency and issuing advisories to the public when necessary via television, radio, and other news media), equipment and emergency plan in general.
9. Critique the drills and **modify components** of the emergency response system as needed.

Responding to Emergencies

Drinking water supply professionals responding to local emergencies need to be adequately prepared and trained, and know their roles and responsibilities. Here are some suggestions.

1. **Know regulatory reporting requirements** of state and federal agencies. Know who to call, telephone numbers and what information to report.
2. **Know your role & responsibilities**. Have access to, and be familiar with, the emergency communication list, policies and procedures for emergency response; know when, and how, to safely handle spills or other events until first responders arrive on scene; know what steps to take to avoid drawing contaminants into the water supply system; be familiar enough with local watershed characteristics to provide incident commander with information and advice.
3. **Provide training and materials to responding staff**. Water supply staff, including new employees, should be adequately trained, have access to appropriate materials (storm drain covers, absorbent pads, booms, etc.), up-to-date policies, procedures, and communication lists to perform tasks for which they are responsible.

Follow-up

Steps can be taken to ensure better preparedness in the event of future emergency situations. Here are some suggestions.

1. **Provide follow-up reports** to the public on the resolution of the situation.
2. **Share the information** learned from drills and real situations with others in order to better protect all public drinking water sources.

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in the Key Issues above and Appendix A.

Section 5: Additional Resources Available for Source Water Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Source Protection Grant Program provides funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response (RFR) for the grant program.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watershed. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Information about DEP Tier Classified Oil or Hazardous Material Release Sites can be obtained at DEP's Bureau of Waste Site Cleanup's web site, www.state.ma.us/dep/bwsc. Sites are identified on the attached GIS map and site specific information is available in Appendix B.

Section 6: Appendices

- A. List of Regulated Facilities (in Massachusetts)
- B. Table of Tier Classified Oil and/or Hazardous Material Sites
- C. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's NERO at (617) 654-6535 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN METHUEN'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132441	EISAI RESEARCH INSTITUTE	4 CORPORATE DR	ANDOVER	TURRPT	LARGE QUANTITY TOXICS USER
31379	HEWLETT PACKARD CO ANDOVER DIV	1776 MINUTEMAN RD	ANDOVER	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
131306	HEWLETT PACKARD COMPANY	3000 MINUTEMAN ROAD	ANDOVER	TURRPT	LARGE QUANTITY TOXICS USER
133314	M K S INSTRUMENTS INC	6 SHATTUCK RD	ANDOVER	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
133314	M K S INSTRUMENTS INC	6 SHATTUCK RD	ANDOVER	TURRPT	LARGE QUANTITY TOXICS USER
38043	NEW ENGLAND HYDRO TRANS ELECTRIC	RADISSON RD	AYER	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
38043	NEW ENGLAND HYDRO TRANS ELECTRIC	RADISSON RD	AYER	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
--	BROOK VILLAGE CONDO	C/O RELIABLE PROP. MGMT/P.O. BOX 210	BOXBOROUGH	GROUND	GROUNDWATER DISCHARGE
39155	CHELMSFORD LANDFILL	SWAIN RD	CHELMSFORD	SLF	CHARGEABLE CLOSED LANDFILL
366769	MERRIMACK VALLEY SCREEN PRINTING INC	6 ADAMS ST	CHELMSFORD	PLANT	NON-NOTIFIER AQ FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
366769	MERRIMACK VALLEY SCREEN PRINTING INC	6 ADAMS ST	CHELMSFORD	DISCH	NON-NOTIFIER IWW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
130648	BROX INDUSTRIES INC	1471 METHUEN ST	DRACUT	HWR	HAZARDOUS WASTE RECYCLER
130648	BROX INDUSTRIES INC	1471 METHUEN ST	DRACUT	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
131963	UNITED CIRCUITS INC	100 PLEASANT ST	DRACUT	TURRPT	LARGE QUANTITY TOXICS USER
131963	UNITED CIRCUITS INC	100 PLEASANT ST	DRACUT	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
--	COMPAQ COMPUTER CORP	550 KING STREET	LITTLETON	GROUND	GROUNDWATER DISCHARGE
--	LITTLETON NURSING HOME	2955 KEITH STREET	LITTLETON	GROUND	GROUNDWATER DISCHARGE
130870	MIDDLESEX MATERIALS CORP	80 AYER ROAD	LITTLETON	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
--	PONDSIDE APT. COMPLEX	488 COMMONWEALTH AVENUE	LITTLETON	GROUND	GROUNDWATER DISCHARGE
MA0004936	VERYFINE PRODUCTS INC	20 HARVARD ROAD	LITTLETON	DISCHARGE	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
186901	VERYFINE PRODUCTS INC	20 HARVARD ROAD	LITTLETON	TURRPT	LARGE QUANTITY TOXICS USER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
28141	CHEVROLET OF LOWELL INC	831 ROGERS ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
53879	FREUDENBERG NONWOVEN	221 JACKSON ST	LOWELL	TURRPT	LARGE QUANTITY TOXICS USER
53879	FREUDENBERG NONWOVEN	221 JACKSON ST	LOWELL	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131011	IDEAL TAPE COMPANY	1400 MIDDLESEX STREET	LOWELL	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
131011	IDEAL TAPE COMPANY	1400 MIDDLESEX STREET	LOWELL	TURRPT	LARGE QUANTITY TOXICS USER
177799	JIFFY LUBE	645 ROGERS STREET	LOWELL	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
53762	JOAN FABRICS CORP	27 JACKSON STREET	LOWELL	TURRPT	LARGE QUANTITY TOXICS USER
53845	LOWELL COGENERATION COMPANY LIMITED PARTNER	282 WESTERN AVE	LOWELL	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
131026	M/A COM INC	100 CHELMSFORD ST.	LOWELL	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
131026	M/A COM INC	100 CHELMSFORD ST.	LOWELL	TURRPT	LARGE QUANTITY TOXICS USER
215603	NE NO6 INC SPEEDEE OIL CHANGE & TUNE UP	1485 MIDDLESEX ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
35763	NTI LUBRICATIONS INC	1713 MIDDLESEX ST	LOWELL	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
35763	NTI LUBRICATIONS INC	1713 MIDDLESEX ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
121233	OAK FINISHERS CO	REAR 165 JACKSON ST	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
295908	RADIOLOGY RESOURCES INC	225 STEDMAN STREET - UNIT #33	LOWELL	HWR	HAZARDOUS WASTE RECYCLER
131016	ROCHE BROTHERS BARREL CO.	161 PHOENIX AVENUE	LOWELL	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
365455	SPECIALTY MATERIALS INC	1449 MIDDLESEX AVE	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
365455	SPECIALTY MATERIALS INC	1449 MIDDLESEX AVE	LOWELL	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
131030	TEXTRON SPECIALTY CORPORATION	1449 MIDDLESEX STREET	LOWELL	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
131030	TEXTRON SPECIALTY CORPORATION	1449 MIDDLESEX STREET	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
34343	ASHLAND CHEMICAL COMPANY	400 MAIN ST	TEWKSBURY	HANDLR	TRANSPORTER OF HAZARDOUS WASTE
34343	ASHLAND CHEMICAL COMPANY	400 MAIN ST	TEWKSBURY	TURRPT	LARGE QUANTITY TOXICS USER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
34343	ASHLAND CHEMICAL COMPANY	400 MAIN ST	TEWKSBURY	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
53791	ECRM	554 CLARK RD	TEWKSBURY	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
370388	3A GAS	257 MIDDLESEX RD	TYNGSBORO	FULDSP	FUEL DISPENSER
322941	ANDYS AUTO BODY	339 WESTFORD ST	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
320025	BELCASTRO FURNITURE RESTORATION	77 WESTECH DR	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132303	BFI WASTE SYSTEMS OF NORTH AMERICA	385 DUNSTABLE RD	TYNGSBORO	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
298585	BRITE KLEEN CLEANERS	26 WESTFORD RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32160	COLONIAL AUTO BODY	121 LAKEVIEW AVE	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
110594	DANA WALLBOARD SUPPLY INC	6 CUMMINGS RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
302562	DUFFS GARAGE	92 KENDALL RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
291199	DUNBAR BUS CO	33 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132214	HUSSEY PLASTICS INC	65 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
307332	INDEPENDENT SPRAY	26R WOODLAWN ST	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
368183	MOBIL 12369	95-97 WESTFORD RD	TYNGSBORO	FULDSP	FUEL DISPENSER
324984	MUTUAL OIL	397 MIDDLESEX RD	TYNGSBORO	FULDSP	FUEL DISPENSER
321837	MUTUAL OIL CO INC	397 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
368441	NEW ENGLAND TRANSIT SALES INC	30 PROGRESS AV	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
132833	PICONICS INC	26 CUMMINGS RD	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
853	THUNDERBIRD PLAZA	MIDDLESEX RD	TYNGSBORO	GROUND	GROUNDWATER DISCHARGE
209890	TJ MAXX PLAZA	440 MIDDLESEX RD	TYNGSBORO	GROUND	GROUNDWATER DISCHARGE
230673	TOWN AND COUNTRY GARAGE	54 PAWTUCKET BLVD	TYNGSBORO	FULDSP	FUEL DISPENSER
37104	TYNGSBORO AUTO WORKS	33 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
310633	TYNGSBORO HIGHWAY DEPT	89 KENDELL RD	TYNGSBORO	FULDSP	FUEL DISPENSER
130848	WESTFORD ANODIZING CORP	12 NORTH MAIN ST	WESTFORD	TURRPT	LARGE QUANTITY TOXICS USER
130848	WESTFORD ANODIZING CORP	12 NORTH MAIN ST	WESTFORD	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
MA0024414	WESTFORD ANODIZING CORPORATION	12 NORTH MAIN ST	WESTFORD	DISCHARGE	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
--	WESTFORD MIDDLE SCHOOL	35 TOWN FARM ROAD	WESTFORD	GROUND	GROUNDWATER DISCHARGE

UNDERGROUND STORAGE TANKS WITHIN METHUEN'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
BELL ATLANTIC	HOLMES RD	ANDOVER	UTILITIES	1
BELL ATLANTIC	15 SHATTUCK RD	ANDOVER	UTILITIES	2
INDIAN RIDGE CC	73 LOVEJOY RD	ANDOVER	OTHER	1
MOBIL #01-252	309 LOWELL ST	ANDOVER	GAS STATION	3
MOBIL #01-JE3	139 RIVER RD	ANDOVER	GAS STATION	5
M W LEAHY CO INC	21 WESTFORD RD	AYER	TRUCK/TRANSPORT	3
MASS DPW MAINT DEPOT	SWANSON RD	BOXBOROUGH	STATE	2
TOSCO #2634709	1425 MASSACHUSETTS AVE	BOXBOROUGH	GAS STATION	4
BOMIL G.P. WELL # 1,3,4	RICHARDSON ROAD	CHELMSFORD	UTILITIES	3
CUMBERLAND GULF #2428	71 DRUM HILL RD	CHELMSFORD	GAS STATION	5
MARCHAND OIL CO INC	89 STEADMAN ST	CHELMSFORD	PETR. DISTR	7
SHELL SERVICE STATION 22013090505	188 PRINCETON BLVD	CHELMSFORD	GAS STATION	4
SUNOCO #0011-8927	100 DRUM HILL RD	CHELMSFORD	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
TOSCO #2634732	5 DRUM HILL RD	CHELMSFORD	GAS STATION	3
BELL ATLANTIC (5243-07)	28 DIANA LN	DRACUT	UTILITIES	3
BELL ATLANTIC CENTRAL OFFICE	1212 MAMMOTH RD	DRACUT	UTILITIES	1
CON-WAY CENTRAL EXPRESS	22 MCGRATH RD	DRACUT	TRUCK/TRANSPORT	1
DRACUT AUTO CARE INC	500 NASHUA RD	DRACUT	GAS STATION	3
GEORGE BROX INC	1471-1480 METHUEN ST	DRACUT	CONTRACTOR	3
HIGHWAY DEPT	833 HILDRETH ST	DRACUT	MUNICIPAL	2
JAY'S SERVICE CENTER INC	1225 MAMMOTH RD	DRACUT	GAS STATION	6
JIM'S SERVICE STATION INC	1643 LAKEVIEW AVE	DRACUT	GAS STATION	4
P J KEATING COMPANY	240 BRIDGE ST	DRACUT	TRUCK/TRANSPORT	1
PORTLAND STONWARE COMPANY	50 MCGRATH RD	DRACUT	INDUSTRIAL/TRUCK/ TRANS	1
RYDER TRANSPORATION SERV #0364A	31 MCGRATH RD	DRACUT	TRUCK/TRANSPORT	5
SEVERENCE TRUCKING CO INC	49 MCGRATH RD	DRACUT	TRUCK/TRANSPORT	1

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
SHELL SERVICE STATION 22018770200	1100 LAKEVIEW ST	DRACUT	GAS STATION	4
THE PERRIER GROUP OF AMERICA	32 COMMERICAL DR	DRACUT	TRUCK/TRANSPORT	1
DUNSTABLE GENERAL STORE INC	238 PLEASANT ST	DUNSTABLE	GAS STATION	3
A L PRIME ENERGY	619 BOSTON RD	GROTON	GAS STATION	3
TOWN OF GROTON HIGHWAY DEPT	500 COW POND BROOK RD	GROTON	MUNICIPAL	2
ARCHER'S MOBIL # 01-787	500 KING ST	LITTLETON	GAS STATION	5
DCM ENTERPRISES INC	25 KING ST	LITTLETON	GAS STATION	5
LITTLETON CITGO	256 AYER RD	LITTLETON	GAS STATION	3
NATIONAL FREIGHT INC #09	194 AYERS RD	LITTLETON	TRUCK/TRANSPORT	3
SHELL SERVICE STATION #137781	460 KING ST	LITTLETON	GAS STATION	3
TMC LEASING LLC	80 AYER RD	LITTLETON	INDUSTRIAL	2
TOWN OF LITTLETON	39 AYER RD	LITTLETON	MUNICIPAL	3
VERYFINE PRODUCTS INC	20 HARVARD RD	LITTLETON	INDUSTRIAL	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
ADVANCED AUTO PERFORMANCE	479 BROADWAY ST	LOWELL	GAS STATION	2
AMES CORPORATION	121 CHURCH ST	LOWELL	OTHER	1
BELL ATLANTIC	115 APPLETON ST	LOWELL	UTILITIES	1
BRIDGE STREET SUNOCO	356 BRIDGE ST	LOWELL	GAS STATION	3
COLONIAL GAS CO	775 DUTTON ST	LOWELL	UTILITIES	3
FORMER DEMERS SHELL STATION	550 BRIDGE ST	LOWELL	GAS STATION	5
GASOLINE MERCHANTS INC	276 HIGH ST	LOWELL	GAS STATION	4
GASOLINE MERCHANTS INC	710-724 LAKEVIEW AVE	LOWELL	GAS STATION	3
GEOFFREYS SERVICE STATION	290 WESTFORD ST	LOWELL	GAS STATION	1
GEORGE MACHERAS	66 BROADWAY ST	LOWELL	OTHER	1
GETTY STATION #30618	801 LAKEVIEW AVE	LOWELL	GAS STATION	2
GORHAM STREET SUNOCO	380 GORHAM ST	LOWELL	GAS STATION	3
HAFFNER'S	1150 BRIDGE ST	LOWELL	GAS STATION/ PETR. DISTR	7

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
HAFFNER'S	189 APPLETON ST	LOWELL	GAS STATION	3
HAFFNER'S	215 DUTTON ST	LOWELL	GAS STATION	6
HESS 21322	558 PAWTUCKET ST	LOWELL	GAS STATION	3
HESS 21509	300 MERRIMACK ST	LOWELL	GAS STATION	3
IDEAL TAPE COMPANY	1400 MIDDLESEX ST	LOWELL	INDUSTRIAL	3
JIM WITT PONT-GMC TRUCK INC	1365 MIDDLESEX ST	LOWELL	VEHICLE DEALER	1
JOAN FABRICS CORP PLANT #14	27 JACKSON ST	LOWELL	INDUSTRIAL	1
KAZANJIAN ENTERPRISE	1460 MIDDLESEX ST	LOWELL	GAS STATION	5
KINNEY'S TEXACO SERVICE INC	262 PAWTUCKET ST	LOWELL	GAS STATION	3
LOWELL GENERAL HOSPITAL	295 VARNUM AVE	LOWELL	HOSPITAL	2
LOWELL REGIONAL WATER UTILITY	815 PAWTUCKET BLVD	LOWELL	MUNICIPAL	2
MOUJAES INC C&J MOBIL	443 BRIDGE ST	LOWELL	GAS STATION	4
MULDOON BROTHERS INC	498 BROADWAY ST	LOWELL	GAS STATION	2

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
PALMER'S AUTOMOTIVE	1500 MIDDLESEX ST	LOWELL	GAS STATION	1
PETE AND RAY AUTO REPAIR INC	472 PRINCETON BLVD	LOWELL	GAS STATION	3
RAY MARCHAND OIL / AUTO	493 PRINCETON BLVD	LOWELL	GAS STATION	4
ROD'S AUTO CARE	626 ROGERS ST	LOWELL	GAS STATION	5
RONS TEXACO	360 MAMMOTH RD	LOWELL	GAS STATION	3
SUNOCO #0005-2894	711 ROGERS ST	LOWELL	GAS STATION	5
TONY'S FILLING STATION INC	51 MAMMOTH RD	LOWELL	GAS STATION	2
UNIVERSITY OF LOWELL	SOUTH CAMPUS	LOWELL	OTHER	1
UNIVERSITY OF LOWELL NORTH CAMPUS	NEW (1989) DORMITORY	LOWELL	OTHER	1
US POSTAL SERVICE LOWELL MAINT	44 POST OFFICE SQ	LOWELL	FEDERAL/ NON-MILITARY	4
USA PETROLEUM CORP	780 ROGERS ST	LOWELL	GAS STATION	3
METHUEN COASTAL	460 LOWELL ST	METHUEN	GAS STATION	3
CRANE RENTAL CO INC	205 OLD MAIN ST	TEWKSBURY	OTHER	2

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
MOBIL #01-JFA	2 MAIN ST	TEWKSBURY	GAS STATION	6
MOBIL #01-PRJ	940 ANDOVER ST	TEWKSBURY	GAS STATION	5
SHELL STATION # 116791	365 MAIN ST	TEWKSBURY	GAS STATION	1
TEXACO SERVICE	1975 MAIN ST	TEWKSBURY	GAS STATION	5
TEXACO SERVICE LOC #11-025-0018	1 MAIN ST	TEWKSBURY	GAS STATION	4
BROWNING-FERRIS IND OF MASS INC	385 DUNSTABLE RD	TYNGSBOROUGH	TRUCK/TRANSPORT	2
DUSTY & SONS INC	257 MIDDLESEX RD	TYNGSBOROUGH	GAS STATION	4
MIDDLESEX TEXACO	397 MIDDLESEX RD	TYNGSBOROUGH	GAS STATION	2
MOBIL #01-E5Y	95-97 WESTFORD RD	TYNGSBOROUGH	GAS STATION	3
TOWN & COUNTRY	54 PAWTUCKET BLVD	TYNGSBOROUGH	OTHER	4
TOWN OF TYNGSBORO HIGHWAY DEPT	89 KENDALL RD	TYNGSBOROUGH	MUNICIPAL	2
COOK OIL CO INC	23 FORGE VILLAGE RD	WESTFORD	OTHER	1
CUMBERLAND FARMS #2408	158-180 LITTLETON RD	WESTFORD	GAS STATION	4

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
GETTY STATION #30562	1 OAK HILL RD	WESTFORD	GAS STATION	2
GETTY STATION #30633	262 GROTON RD	WESTFORD	GAS STATION	3
MOBIL #361	185 LITTLETON RD	WESTFORD	GAS STATION	4
ROBERT M HICKS INC	124 MAIN ST	WESTFORD	CONTRACTOR	1
WESTFORD CITGO	169 PLAIN RD	WESTFORD	GAS STATION	3
WESTFORD TIRE & AUTO	215 GROTON RD	WESTFORD	GAS STATION	4

For More Information On Underground Storage Tanks, Visit The Massachusetts Department Of Fire Services Web Site:
[Http://www.State.Ma.Us/Dfs/Ust/Usthome.Htm](http://www.state.ma.us/dfs/ust/usthome.htm)

Note: This Appendix Includes Only Those Facilities Within The Water Supply Protection Area(s) That Meet State Reporting Requirements And Report To The Appropriate Agencies. Additional Facilities Located Within The Water Supply Protection Area(s) Should Be Considered In Local Drinking Water Source Protection Planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Methuen Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Status
3-0003072	309 Lowell St	Andover	TIER 2
3-0003339	Lovejoy Rd	Andover	TIER 2
2-0000026	1425 Massachusetts Ave	Boxborough	TIER 1B
3-0019820	5 Drumhill Rd	Chelmsford	TIER 2
3-0000049	11 School St	Chelmsford	DEF TIER 1B
3-0001069	Broadway Rd	Dracut	DEF TIER 1B
3-0003492	1507 Lakeview Ave	Dracut	TIER 2

RTN	Release Site Address	Town	Status
3-0002400	25 Victory Lane	Dracut	TIER 2
3-0004645	91 Mill St	Dracut	TIER 2
3-0016749	1507 Lakeview Ave	Dracut	TIER 2
3-0000496	1095 Lakeview Ave	Dracut	TIER 2
3-0004651	2060 Bridge St	Dracut	DEF TIER 1B
2-0000223	37 Gilson Rd	Groton	TIER 1B
2-0012568	256 Ayer Rd	Littleton	TIER 1C
2-0014006	Taylor St	Littleton	TIER 1C
3-0001052	150 Phoenix Ave	Lowell	TIER 2
3-0001056	Varnum Ave	Lowell	DEF TIER 1B
3-0004561	2461 Market St	Lowell	DEF TIER 1B
3-0019949	10 Technology Dr	Lowell	TIER 2
3-0000347	1 Kyan St	Lowell	TIER 2
3-0002629	774 Dutton St	Lowell	DEF TIER 1B
3-0004664	205 Church St	Lowell	DEF TIER 1B
3-0000041	200 Market St	Lowell	TIER 2
3-0017036	180 Church St	Lowell	TIER 2
3-0002044	1465 Middlesex St	Lowell	DEF TIER 1B
3-0001975	70 French Amory St	Lowell	DEF TIER 1B
3-0017559	290 Westford St	Lowell	TIER 2
3-0000355	Broadway Dummer St	Lowell	DEF TIER 1B

RTN	Release Site Address	Town	Status
3-0018128	219 East Merrimac St	Lowell	TIER 2
3-0011528	Westford St	Lowell	DEF TIER 1B
3-0002609	262 Pawtucket St	Lowell	TIER 2
3-0001620	66 Broadway	Lowell	TIER 2
3-0004509	253 Merrimack St	Lowell	TIER 1C
3-0013603	262 Pawtucket St	Lowell	TIER 2
3-0014250	Pevey St @ Arlene St	Lowell	DEF TIER 1B
3-0014974	780 Rogers St	Lowell	TIER 2
3-0017804	479 Broadway	Lowell	TIER 2
3-0018004	50 Arcand Dr	Lowell	DEF TIER 1B
3-0018153	498 Broadway	Lowell	TIER 2
3-0002756	224 Walker St	Lowell	DEF TIER 1B
3-0000351	161 Phoenix Ave	Lowell	TIER 2
3-0001954	1682-1700 Middlesex St	Lowell	TIER 2
3-0000852	43 Lakeview Ave	Lowell	DEF TIER 1B
3-0001328	356 Bridge St	Lowell	TIER 2
3-0000535	Aiken Ave Perkins St	Lowell	TIER 2
3-0002544	1 University Ave	Lowell	TIER 2
3-0016515	1101 Riverside Dr	Methuen	TIER 2
3-0000810	2 Main St	Tewksbury	TIER 2
3-0000439	400 Main St Rte 38	Tewksbury	TIER 1B

RTN	Release Site Address	Town	Status
3-0001162	450 Clark Rd	Tewksbury	TIER 2
3-0003181	940 Andover St	Tewksbury	TIER 2
3-0012734	Main St And Clark Rd	Tewksbury	DEF TIER 1B
3-0001717	365 Main St	Tewksbury	TIER 2
3-0002516	1 Main St	Tewksbury	TIER 2
2-0000392	292 Middlesex Rd	Tyngsborough	DEF TIER 1B
2-0000136	475-530 Dunstable Rd	Tyngsborough	TIER 1A
2-0010348	11 12 Waterway Pl	Tyngsborough	TIER 1C
2-0013702	95 97 Westford Rd	Tyngsborough	TIER 2
2-0011257	95 97 Westford Rd	Tyngsborough	TIER 2
2-0012727	54 Pawtucket Blvd	Tyngsborough	TIER 1C
2-0011980	160 Main St	Westford	TIER 2
2-0014121	12 Brookside Rd	Westford	TIER 1C
2-0013703	169 Plain Rd	Westford	TIER 1C
2-0000160	169 Plain Rd	Westford	TIER 1C
2-0012528	262 Groton Rd	Westford	TIER 2
2-0012368	262 Groton Rd	Westford	TIER 2
2-0010019	2 Carl Thompson Rd	Westford	TIER 2
2-0000232	10 North Main St	Westford	TIER 2

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Danvers and Middleton

What is SWAP?

The Source Water Assessment and Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Danvers Water Department (also serves Middleton)
<i>PWS Address</i>	30 Lake Street
<i>City/Town</i>	Middleton, MA 01949
<i>PWS ID Number</i>	3071000
<i>Local Contact</i>	David Lane
<i>Phone Number</i>	(978) 777-0001 ext. 3011

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

Groundwater Sources

Zone II #: 254

Susceptibility: High

Well Name	Source ID#
Well #1	3071000-01G
Well #2	3071000-02G

Surface Water Sources

Source Name	Source ID #	Susceptibility
Middleton Pond Reservoir	3071000-01S	Moderate
Swan Pond Reservoir	3071000-02S	Moderate
Emerson Brook Reservoir	3071000-03S	Moderate

The wells for the Danvers and Middleton water supply are located within a single water supply protection area, with portions of the Zone II in the Towns of Danvers, Middleton, and Peabody, and a very small portion extending into Lynnfield. Each well has a Zone I radius of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The reservoirs for Danvers and Middleton are located within three separate water supply protection areas. The Middleton Pond Reservoir water supply protection area is mostly in the Town of Middleton, and extends into the Town of North Reading. The Swan Pond Reservoir water supply protection area is in the Town of North Reading. The Emerson Brook Reservoir water supply protection area is in the Towns of Middleton, North Andover, and North Reading, with a small portion extending into the Town of Andover.

The system water is filtered, chlorinated for disinfection, fluoridated for dental health, and pH adjusted for corrosion control. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

Danvers and Middleton watershed lands and Zone II lands are primarily a mixture of forest, and residential land use, with smaller portions consisting of commercial, industrial, and other land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Activities in Zone A
3. Hazardous Materials Storage and Use
4. Residential Land Uses
5. Transportation Corridors
6. Oil or Hazardous Material Contamination Sites
7. Comprehensive Wellhead Protection Planning

The ranking of susceptibility to contamination for the Well #1 & Well #2 Zone II is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2. The ranking of susceptibility to contamination for the Middleton Pond Reservoir, Swan Pond Reservoir and the Emerson Brook Reservoir Zone C is moderate, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone I – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for Well #1 (01G) is not entirely owned or controlled by the public water supplier, and contains a portion of Route 114, and a portion of a gas station.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Activities in Zone As - Land use activities within the Danvers and Middleton Zone As which, if managed improperly, may have an impact on surface water sources include: homes with on-site septic systems; residential storage of heating oil; local roads; stormwater runoff; and transmission line rights-of-way. Wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.

Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.

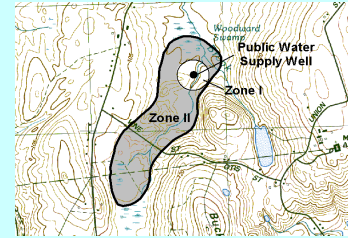
3. Hazardous Materials Storage and Use – Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP's for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure "Industrial Floor Drains" for more information.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.

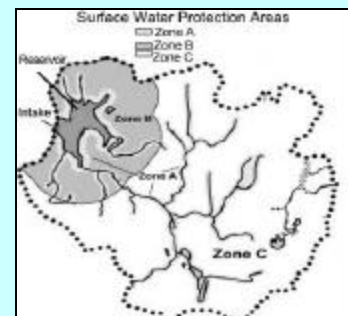


What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



4. Residential Land Uses – Approximately 49% of Danvers and Middleton’s combined Zone II and watershed lands consist of residential areas. Some of the areas have public sewers, and some use on-site septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.



- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.

5. Transportation Corridors - State and local roads are common in the watersheds and Zone II. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

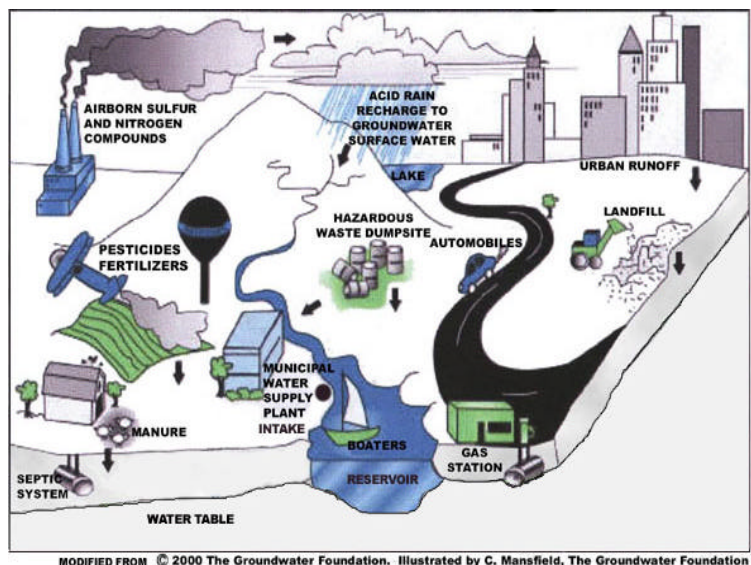


Figure 1: Sample watershed with examples of potential sources of contamination

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Water Supply Protection Areas

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II Number	Watershed Source ID	Potential Contaminant Sources*
Commercial					
Gas Stations	1	H	254	-	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	4	H	254	-	Spills, leaks, or improper handling of automotive fluids, and solvents
Dry Cleaners	1	H	254	-	Spills, leaks, or improper handling of solvents and wastes
Golf Courses	1	M	-	01S	Over-application or improper handling of fertilizers or pesticides
Repair Shops (Engine, Appliances, Etc.)	1	H	254	-	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Industrial					
Machine/ Metalworking Shops	6	H	254	-	Spills, leaks, or improper handling of solvents; metal tailings
Residential					
Fuel Oil Storage (at residences)	Numerous	M	254	01S, 02S, 03S	Fuel oil: spills, leaks, or improper handling
Lawn Care/ Gardening	Numerous	M	254	01S, 02S, 03S	Pesticides: over-application or improper storage and disposal
Septic Systems/ Cesspools	Numerous	M	254	01S, 02S, 03S	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous					
Aboveground Storage Tanks	4	M	254	-	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife and Pet Waste	Numerous	L	-	01S, 02S, 03S	Microbial contaminants
Landfills and Dumps	1	H	254	-	Seepage of leachate

Land Uses	Quantity	Threat	Zone II Number	Watershed Source ID	Potential Contaminant Sources*
Miscellaneous					
NPDES Locations	1	L	-	01S	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	6	--	254	03S	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	1	M	254	-	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	5	M	254	-	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/Retention Basins	Numerous/Several	L	254	01S, 02S, 03S	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way: <u>electric & gas</u>	1	L	254	01S, 02S, 03S	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	3	M	254	01S, 02S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	21	M	254	-	Spills, leaks, or improper handling or storage of hazardous materials and waste
Very Small Quantity Hazardous Waste Generator	5	L	254	03S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/Recycling Station	1	M	254	-	Improper management, seepage, and runoff of water contacting waste materials
Water Treatment Sludge Lagoon	2	L	-	01S	Sludge and wastewater: improper management

Table Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

- **THREAT RANKING** - Where there are two rankings, the first is for surface water, the second for groundwater sources. The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include contaminants from automotive leaks, maintenance, washing, or accidents. Railroad tracks run through the watershed. Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals.

Transportation Corridor Recommendations:

- ✓ Regularly inspect watersheds and Zone II for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.

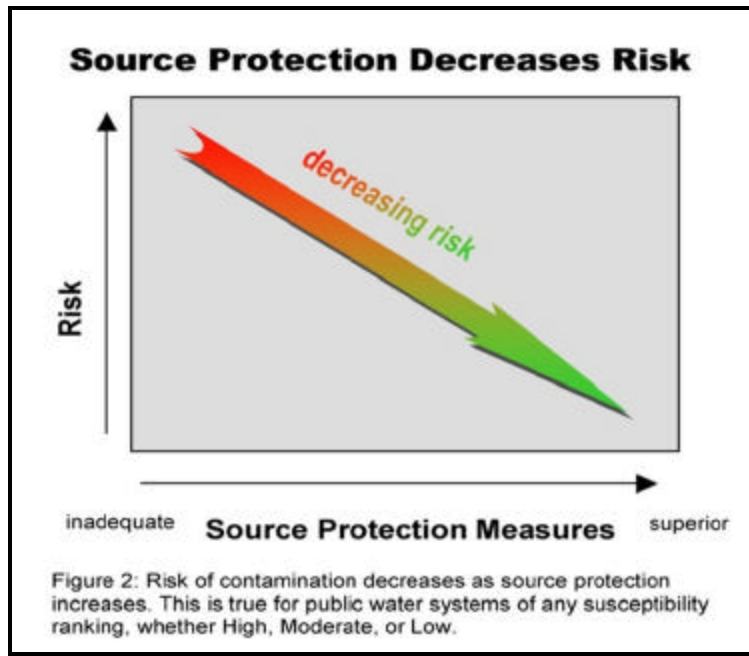
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Promote BMPs for stormwater management and pollution controls.

6. Presence of Oil or Hazardous Material Contamination Site – The Zone II and watershed contain MADEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Number 3-0001941, 3-0004485, 3-0006062, 3-0015046, 3-0016824, and 3-0018425. Refer to the attached map and Appendix C for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known contamination sites.

7. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir. Currently, the Town of Danvers has water supply protection controls that have been approved as meeting DEP's Wellhead Protection regulations 310 CMR 22.21(2), however, Middleton does not have water supply protection controls that have been approved as meeting DEP's Surface Water Protection regulations 310 CMR 22.20 (b) and (c).



Wellhead Protection and Surface Water Supply Protection Plans coordinate community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop plans for protecting drinking water supply sources.

Protection Planning Recommendations:

- ✓ Develop and implement Surface Water Supply and Wellhead Protection Plans. Refer your protection team to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance on developing plans.
- ✓ If your local surface water supply protection controls do not meet the current regulations, coordinate efforts with local officials to adopt local water supply protection controls that meet current MA regulations 310 CMR 22.21(2) and 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Zone II and watershed that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system’s Zone II and watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Conducting an annual watershed inspection.
- Working actively with school children on protection related issues.
- Controlling access to the reservoirs and watershed.
- Conducting a source protection study that identified storm drains in the watershed.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Inspect the Zone Is and As regularly, and when feasible, remove any non-water supply activities.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with the watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow to the Zone II .
2. The groundwater in this area probably discharges to surface water feature such as a river rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Top 5 Reasons to Develop a Local Wellhead and Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I and Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and/or Zone A?	YES (Zone I for Well #2)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Zone I for Well #1 and Zone A for Reservoirs)	To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements. Investigate options for gaining ownership or control of the Zone A.
Are the Zone I and Zone A posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone I and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I and Zone A?	YES (Zone I for Well #2)	Monitor for any non-water supply activities in Zone I and prohibited activities in Zone A, and investigate options for removing these activities.
	NO (Zone I for Well #1 and Zone A for Reservoirs)	Monitor prohibited activities in Zone I and Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO - Middleton; YES - Danvers	Continue working with the Planning Board and the Board of Selectmen to compare land use controls to see that they meet current requirements of 310 CMR 22.21(2) and 310 CMR 22.20C. Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Work with the communities of Middleton, North Andover, North Reading, and Peabody to encourage them to protect watershed and Zone II lands.
Planning		
Does the PWS have a local surface water and wellhead protection plan?	NO	Develop and implement a surface water supply and wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" and "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed and wellhead protection committee?	YES	Encourage committee to include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	Fire Department	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	Some	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II and watershed.

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Develop and implement a Wellhead and Surface Water Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN DANVERS/MIDDLETON WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
178417	RONCO MACHINE CORPORATION	370 ANDOVER STREET	DANVERS	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
1080	DANVERS WATER TREATMENT PLANT	30 LAKE STREET	MIDDLETON	SURFAC	SURFACE WATER DISCHARGE
135310	MIDDLETON AEROSPACE CORPORATION	206 SOUTH MAIN STREET	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
39508	MIDDLETON LANDFILL	11 NATSUE WAY	MIDDLETON	SLF	LANDFILL
39508	MIDDLETON TRANSFER STATION	11 NATSUE WAY	MIDDLETON	TRSTN	TRANSFER STATION FOR HAZARDOUS MATERIAL
298535	WALGREENS	230 SOUTH MAIN STREET	MIDDLETON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
304351	MIDDLETON DEPARTMENT OF PUBLIC WORKS	195 NORTH MAIN STREET	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE PUBLIC WORKS
329379	114 IMPORTS INC	234 SOUTH MAIN STREET	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE PUBLIC WORKS
361645	WATSON BROTHERS INC	6 BIRCH RD	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
363425	FAST FREDDIES	265 SOUTH MAIN STREET	MIDDLETON	FULDSP	FUEL DISPENSER
136102	PEABODY PUMP N PANTRY	137 NEWBURY STREET	PEABODY	FUEL DISPENSER	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
136117	LAKE STREET CITGO	26 LAKE STREET	PEABODY	FUEL DISPENSER	FUEL DISPENSER
136117	LAKE STREET CITGO	26 LAKE STREET	PEABODY	HANDLER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
326368	ALLIED WASTE SYSTEMS DBA VINING DISPOSAL SERVICES	295 FOREST STREET	PEABODY	TRSTN	TRANSFER STATION FOR TOXICS
326370	ALLIED WASTE SYSTEMS DBA VINING DISPOSAL SERVICES	295 FOREST STREET	PEABODY	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
364207	ATLANTIC WASTE SYSTEMS NORTH	295 FOREST STREET	PEABODY	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
136118	J & H AUTO AND TRUCK REPAIR	129 NEWBURY STREET	PEABODY	FUEL DISPENSER	FUEL DISPENSER

UNDERGROUND STORAGE TANKS WITHIN DANVERS/MIDDLETON WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
PUMP N PANTRY	265 SOUTH MAIN STREET	MIDDLETON	GAS STATION	12000	GASOLINE
PUMP N PANTRY	265 SOUTH MAIN STREET	MIDDLETON	GAS STATION	10000	GASOLINE
PUMP N PANTRY	265 SOUTH MAIN STREET	MIDDLETON	GAS STATION	8000	GASOLINE
JOHN M. ROSS & SONS, INC.	50 BUXTON ROAD	DANVERS	CEMETARY	550	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
GAETA TOWING SERVICES	136 NEWBURY STREET	PEABODY	GAS STATION	10000	GASOLINE
GAETA TOWING SERVICES	136 NEWBURY STREET	PEABODY	GAS STATION	10000	GASOLINE
GAETA TOWING SERVICES	136 NEWBURY STREET	PEABODY	GAS STATION	4000	DIESEL
J & H AUTO/TRUCK REPAIR	129 NEWBURY STREET	PEABODY	GAS STATION	10000	GASOLINE
J & H AUTO/TRUCK REPAIR	129 NEWBURY STREET	PEABODY	GAS STATION	6000	GASOLINE
J & H AUTO/TRUCK REPAIR	129 NEWBURY STREET	PEABODY	GAS STATION	4000	GASOLINE
J & H AUTO/TRUCK REPAIR	129 NEWBURY STREET	PEABODY	GAS STATION	2000	DIESEL
PUMP N PANTRY	137 NEWBURY STREET	PEABODY	GAS STATION	12000	GASOLINE
PUMP N PANTRY	137 NEWBURY STREET	PEABODY	GAS STATION	12000	GASOLINE
REGIONAL WASTE SERVICES, INC,	295 FOREST STREET	PEABODY		10000	UNSPECIFIED

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Danvers/Middleton Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0001505	265 South Main Street	Middleton	Oil
3-0001941	234 South Main Street	Middleton	Oil
3-0004485	North Main Street	Middleton	Oil
3-0015046	North Main Street	Middleton	Oil
3-0016824	6-12 Birch Road	Middleton	Oil
3-0018425	1 Birch Road	Middleton	Hazardous Material
3-0001565	144 Newbury Street	Peabody	Oil
3-0006062	6 Bow Street	Peabody	Oil
3-0016711	137 Newbury Street	Peabody	Oil
3-0019019	144 Newbury Street	Peabody	Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Millis Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Millis Water Department
<i>PWS Address</i>	7 Water Street
<i>City/Town</i>	Millis, Massachusetts 02054
<i>PWS ID Number</i>	3187000
<i>Local Contact</i>	Irving Priest – DPW Director
<i>Phone Number</i>	(508) 376-5424

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

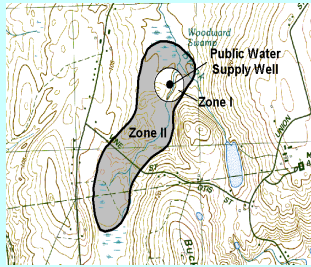
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 126

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Well #3 – Village Street	3187000-03G

Zone II #: 127

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Well #4 – South End Pond	3187000-04G

Zone II #: 324

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Well #1 – Water Street	3187000-01G
Well #2 – Water Street	3187000-02G

The wells for the Millis Water Department are located within three separate water supply protection areas, with portions extending into the towns of Medfield and Sherborn. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II. Millis also has two proposed new wells located off Norfolk Road, with a Zone II that extends into Norfolk and Medfield.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone IIs for Millis are a mixture primarily of forest, wetlands, and residential land uses, with a small portion consisting of agriculture, commercial, and industrial (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Hazardous materials storage and use
2. Department of Public Works facility
3. Landscaping and Agricultural activities
4. Residential land uses
5. Oil or hazardous material contamination sites
6. Comprehensive wellhead protection planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Hazardous Materials Storage and Use – Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs) and/or Aboveground Storage Tanks (ASTs). If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

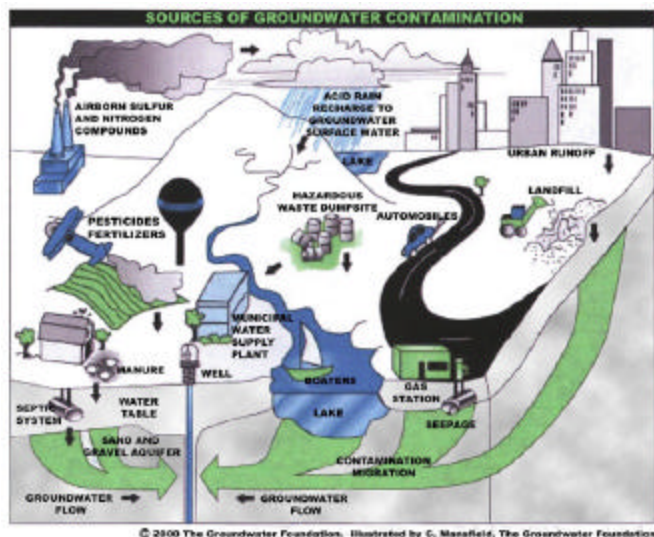
Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP’s for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.
- ✓ Work with the Town to ensure that businesses that store pesticides and fertilizers do so within a structure designed to prevent runoff, as required by Millis’s local source protection bylaw.

2. Department of Public Works Facility - The potential for ground water contamination in municipal facilities is related to accidental dumps, accidental spills, and vehicle washing operations, or from wastewater treatment or left over product. Waste management and product storage processes pose the most prevalent threats to ground water, and a wide variety of potentially harmful constituents are involved in release incidents.

Department of Public Works Facility Recommendations:

- ✓ **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/neeat/muni/index.html>. Encourage the Department of Public Works to develop best management practices to insure proper salt storage, proper maintenance of facilities and good housekeeping practices.
- ✓ **Fuel Dispensing Area**
 - Maintain fuel-dispensing areas using dry cleanup methods. Fueling areas should never be washed down unless dry clean-up has been done and the wash water is collected and disposed of in the sanitary sewer system.
 - Post signs against "topping off" of vehicle fuel tanks.



- The fuel dispensing area should be covered, and the cover must not drain onto the fuel dispensing area.
- The paving around the fuel dispensing area should exceed the minimum dimensions of the "fuel dispensing area", and should have a means for containing accidental spills.
- ✓ **Salt Storage Structure** - Salt pile structures should be adequately sized to allow for the loading and unloading of salt within the structure. Review the Department of Environmental Protection’s Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.
- ✓ **Reduce Activities** – Work with the Town to find an alternate location for the maintenance and parking of school buses.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

3. Landscaping and Agricultural Activities – Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If not contained or applied properly, animal waste from barnyards, manure pits and field application are potential sources of contamination to ground and surface water. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

What are "BMPs?"

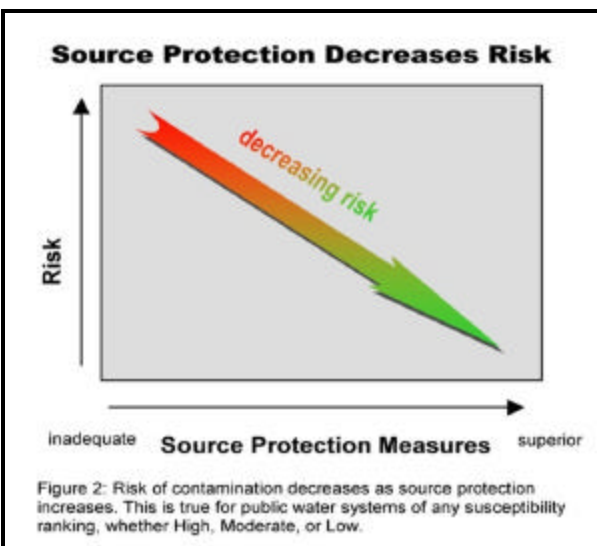
Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Landscaping and Agricultural Activities Recommendation:

- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service farm plan to protect water supplies.
- ✓ Encourage landscape manager’s and farmers to incorporate an **Integrated Pest Management (IPM)** approach into their pest management program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote **Best Management Practices (BMPs)** for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Work with landscapers and farmers to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff, as required by Millis’s local source protection bylaw.

4. Residential Land Uses – Approximately 18% of the Zone II consists of residential use, of which 65% of these areas have public sewers, with the rest using private septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they could be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.



Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

5. Presence of Oil or Hazardous Material Contamination Sites

– The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0000091, 3-0001419, 3-0002548, 3-0003323, 3-0004704, and 3-0011836. Refer to the attached map and Appendix 3 for more information.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Agricultural				
Fertilizer Storage or Use	2	M	126, 324	Leaks, spills, improper handling, or over-application of fertilizers
Livestock Operations	3	M	127	Improper handling of manure (microbial contaminants)
Landscaping	4	M	127, 324	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Manure Storage or Spreading	2	H	126, 127	Improper handling of manure (microbial contaminants)
Pesticide Storage or Use	2	H	126, 324	Leaks, spills, improper handling, or over-application of pesticides
Commercial				
Car/Truck/Bus Washes	2	L	126, 324	Improper management of vehicle wash water; soaps; oils; greases; metals; salts
Gas Stations	4	H	126, 324	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	10	H	126, 127, 324	Automotive fluids, and solvents: spills, leaks, or improper handling
Bus and Truck Terminals	2	H	127, 324	Spills, leaks, or improper handling of fuels and maintenance chemicals
Dry Cleaners	2	H	126, 324	Spills, leaks, or improper handling of solvents and wastes
Funeral Homes	2	L	127, 324	Spills, leaks, or improper handling of hazardous chemicals
Laundromats	2	L	126, 324	Wash water: improper management
Medical Facilities	2	M	126, 324	Biological, chemical, and radioactive wastes: spills, leaks, or improper handling or storage
Nursing Homes	2	L	127, 324	Microbial contaminants: improper management
Photo Processors	4	H	126, 324	Photographic chemicals: spills, leaks, or improper handling or storage
Railroad Tracks And Yards	2	H	127, 324	Herbicides: over-application or improper handling; fuel storage, transported chemicals, and maintenance chemicals: leaks or spills
Repair Shops (Engine, Appliances, Etc.)	10	H	126, 127, 324	Engine fluids, lubricants, and solvents: spills, leaks, or improper handling or storage

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Industrial				
Asphalt, Coal Tar, And Concrete Plants	1	M	126	Hazardous chemicals and wastes: spills, leaks, or improper handling or storage
Fuel Oil Distributors	2	H	127, 324	Spills, leaks, or improper handling or storage of fuel oil
Hazardous Materials Storage	4	H	127, 324	Hazardous materials: spills, leaks, or improper handling or storage
Industrial Lagoons and Pits	2	H	127, 324	Liquid wastes: improper seepage or overflows
Industry/Industrial Parks	3	H	126, 127, 324	Spills, leaks, or improper handling or storage of industrial chemicals and metals
Residential				
Fuel Oil Storage (at residences)	Numerous	M	126, 127, 324	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	126, 127, 324	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	Numerous	M	126, 127, 324	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous				
Aboveground Storage Tanks	2	M	127, 324	Materials stored in tanks: spills, leaks, or improper handling
Clandestine Dumping	2	H	127, 324	Debris containing hazardous materials or wastes
Composting Facilities	2	L	127, 324	Storage and improper handling of organic material, animal waste, and runoff
Landfills and Dumps	2	H	127	Seepage of leachate
Large Quantity Hazardous Waste Generators	1	H	324	Spills, leaks, or improper handling or storage of hazardous materials and waste
Oil or Hazardous Material Sites	8	----	126, 127	Oil or hazardous materials and waste: spills, leaks, or improper handling or storage
Road And Maintenance Depots	2	M	127, 324	Spills, leaks, or improper handling or storage of deicing materials, automotive fluids, fuel storage, and other chemicals
Small Quantity Hazardous Waste Generators	1	M	324	Spills, leaks, or improper handling or storage of hazardous materials and waste
Snow Dump	2	M	127, 324	Melt water containing de-icing and other chemicals from roads and parking lots: improper handling
Stormwater Drains/Retention Basins	Numerous	L	126, 127, 324	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	2	M	126, 324	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	9	H	126, 127, 324	Spills, leaks, or improper handling stored materials
Very Small Quantity Hazardous Waste Generator	4	L	127, 324	Hazardous materials and waste: spills, leaks, or improper handling or storage
Waste Transfer/Recycling Station	2	M	127, 324	Water contacting waste materials: improper management, seepage, and runoff
Water Supply Protection Area % that is Sewered = 65%				
Notes:				
1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.				
2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.				
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.				
THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.				

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

6. Protection Planning – The Town has water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Coordinate efforts with local officials to ensure that local wellhead protection controls continue to meet current MA Wellhead Protection Regulations 310 CMR 22.21(2).

Other land uses and activities within the Zone II that may be potential contaminant sources are included in Table 2. Refer to Appendix A for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased groundwater monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier and Town are commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Town Manager initiated an Environmental Facilities Compliance Audit that included the highway garage, water treatment facilities, and well locations.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead Protection Plan.

Resources for Drinking Water Source Protection:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

Conclusions:

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	NO	Economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas. Pay special attention to fenced areas, lighting, and signs of forced entry into well houses and pump stations.
Are water supply-related activities the only activities within the Zone I?	NO	Shoreline fishing occurs at Well 4, and a lawn mower is stored in a small building within the Zone I of Well 2. Monitor non-water supply activities in Zone Is, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town's source protection district bylaw meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	NO	Work with the towns of Medfield and Sherborn to develop land use restrictions that meet 310 CMR 22.21(2), and to include Millis's Zone IIs in Medfield and Sherborn wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	To have a well rounded committee, include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	Inspection of facilities have been done for hazardous materials. A permit is required for the storage of hazardous material. Coordinate efforts with the Board of Health and Fire Department to continue inspections. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc .
Does the PWS provide wellhead protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN MILLIS WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
177686	EXXON CO USA 36269	868 MAIN STREET ROUTES 109 & 115	MILLIS	HANDLER	Very Small Quantity Generator
329731	GAF MATERIALS CORP	60 CURVE STREET	MILLIS	HANDLER	Small Quantity Generator
329731	GAF MATERIALS CORP	60 CURVE STREET	MILLIS	HANDLER	Small Quantity Generator
329731	GAF MATERIALS CORP	60 CURVE STREET	MILLIS	HANDLER	LARGE QUANTITY GENERATOR - WASTREETE OIL/PCBS ONLY
329731	GAF MATERIALS CORP	60 CURVE STREET	MILLIS	HANDLER	LARGE QUANTITY GENERATOR - WASTREETE OIL/PCBS ONLY
329731	GAF MATERIALS CORP	60 CURVE STREET	MILLIS	PLANT	RES APPLICATION APPROVED
329731	GAF MATERIALS CORPORATION	60 CURVE STREET	MILLIS	TURA REPORTER	LARGE QUANTITY TOXIC USER
304149	IRVING TRUCKING & EXCAVATING COMPANY INC	38F ADAMS STREET	MILLIS	HANDLER	Very Small Quantity Generator
304149	IRVING TRUCKING & EXCAVATING COMPANY INC	38F ADAMS STREET	MILLIS	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTREETE OIL/PCBS ONLY
207566	KEIVAN TOWFIGH	114 UNION STREET	MILLIS	PLANT	AQ SYNTHETIC MINOR W/RESTREETR PTE < OR = 25% OF MAJ
305061	MCCARTHY BROTHERS CONSTREETRUCTION COMPANY	69 ADAMS STREET	MILLIS	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTREETE OIL/PCBS ONLY
40095	MILLIS COMPOSTREET SITE	ISLAND ROAD & ENVIRONMENTAL DRIVE	MILLIS	COMPOSTREET	REGISTREETRATION

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
265505	MILLIS DPW	7 WATER STREET	MILLIS	FUEL DISPENSER	Fuel Dispenser
40095	MILLIS TRANSFER STREETATION	ISLAND STREET	MILLIS	TRANSFER STREETATION	SMALL TRANSFER STREETATION
298176	PHOTOSITE	14 MILLISTON ROAD	MILLIS	HANDLER	Very Small Quantity Generator
325591	SHELL #137801	857 MAIN STREET	MILLIS	FUEL DISPENSER	Fuel Dispenser
358368	TOSCO EXXON 2634728	860 MAIN STREET	MILLIS	FUEL DISPENSER	Fuel Dispenser

UNDERGROUND STORAGE TANKS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
SHELL SERVICE STATION	857 MAIN STREET	MILLIS	SERVICE STATION	10000	GASOLINE
SHELL SERVICE STATION	857 MAIN STREET	MILLIS	SERVICE STATION	10000	GASOLINE
SHELL SERVICE STATION	857 MAIN STREET	MILLIS	SERVICE STATION	10000	GASOLINE
SHELL SERVICE STATION	857 MAIN STREET	MILLIS	SERVICE STATION	550	FUEL OIL
TOSCO	868 MAIN STREET	MILLIS	SERVICE STATION	12000	GASOLINE
TOSCO	868 MAIN STREET	MILLIS	SERVICE STATION	12000	GASOLINE
TOSCO	868 MAIN STREET	MILLIS	SERVICE STATION	12000	GASOLINE
VERIZON	821 MAIN STREET	MILLIS	UTILITY	1000	DIESEL
VERIZON	821 MAIN STREET	MILLIS	UTILITY	1000	DIESEL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Millis Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0000091	857 Main St	Millis	Oil
3-0001419	60 Curve St	Millis	Oil
3-0002548	Water St	Millis	Hazardous Material
3-0003323	40 Railroad Ave	Millis	Oil
3-0004704	7 Water St	Millis	Oil
3-0011836	7 Water St	Millis	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Sunny Spring/Ann & Hope

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Sunny Spring/Ann & Hope
<i>PWS Address</i>	725 Main Street
<i>City/Town</i>	Millis, Massachusetts 02054
<i>PWS ID Number</i>	3187002
<i>Local Contact</i>	John McKinnie
<i>Phone Number</i>	(508) 259-4481

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Attachments

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Section 1: Description of the Water System

IWPA

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Well #1	3187002-02G

Sunny Spring/Ann & Hope (Ann & Hope) maintains and operates one public water supply source. Ann & Hope's source is located within the Charles River basin. The well has a Zone I radius of 325 feet and an Interim Wellhead Protection Area (IWPA) radius of 1107 feet. The Sunny Spring Well (02G) IWPA is located entirely in Millis. This well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

Section 2: Land Uses in the Protection Areas

The IWPA for the Sunny Spring Well is a mixture primarily of residential, forest, industrial and commercial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous Materials Storage and Use
3. Transportation Corridors
4. Residential Land Uses
5. Oil or Hazardous Material Contamination Sites
6. Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection area, as seen in Table 2.

1. Activities in Zone Is – The Zone I for the Sunny Spring Well is a 325 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for the Sunny Spring Well is intersected by Route 109, contains parking for 100+ cars, and contains several buildings associated with the facility's function as a home and garden center.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Hazardous Materials Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs)/Aboveground Storage Tanks (ASTs). Although many facilities within the watershed use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

Work with the Town of Millis to:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

3. Transportation Corridors - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include substances from automotive leaks, maintenance, washing, or accidents.

Transportation Corridor Recommendations:

Work with the Town of Millis to:

- ✓ Regularly inspect IWPA for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren’t yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

4. Residential Land Uses – Approximately 60% of the IWPA consists of residential areas, of which a portion is served by private septic systems, with the remainder being served by municipal sewerage. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.

What is a Protection Area?

A well’s water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** - Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

Work with the Town of Millis to:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.

- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

5. Oil or Hazardous Material Contamination Sites – The IWPA contains three DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0000091, 3-0001003, and 3-0003323. See the attached map and Appendix 1 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

6. Protection Planning - Implementing protection measures and best management practices (BMPs) will reduce the Sunny Spring well’s susceptibility to contamination. Ann & Hope is commended for storing hazardous materials (i.e. fertilizers, pesticides, pool

(Continued on page 7)

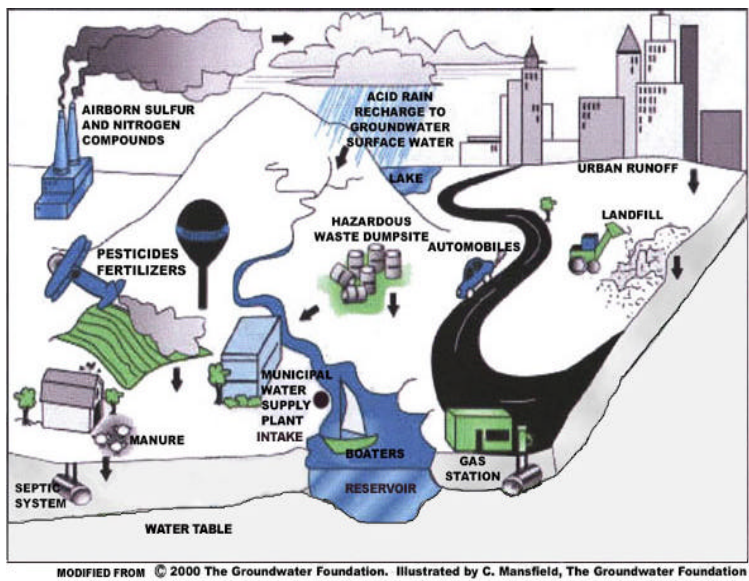


Figure 1: Sample watershed with examples of potential sources of contami-

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Potential Source of Contamination
Agricultural			
Landscaping	1	M	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Nurseries	1	M	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Commercial			
Gas Stations	3	H	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	1	H	Spills, leaks, or improper handling of automotive fluids, and solvents
Dry Cleaners	1	H	Spills, leaks, or improper handling of solvents and wastes
Funeral Homes	1	L	Spills, leaks, or improper handling of hazardous chemicals
Laundromats	1	L	Improper management of wash water
Nursing Homes	1	L	Microbial contaminants
Photo Processors	1	H	Spills, leaks, or improper handling or storage of photographic chemicals
Railroad Tracks and Yards	1	H	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Repair Shops (Engine, Appliances)	1	H	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Industrial			
Fuel Oil Distributors	1	H	Spills, leaks, or improper handling or storage of fuel oil
Hazardous Materials Storage	1	H	Spills, leaks, or improper handling or storage of hazardous materials
Residential			
Fuel Oil Storage (at residences)	100+	M	Spills, leaks, or improper handling of fuel oil

Activities	Quantity	Threat*	Potential Source of Contamination
Residential (cont.)			
Lawn Care / Gardening	100+	M	Over-application or improper storage and disposal of pesticides
Septic Systems / Cesspools	100+	M	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous			
Aboveground Storage Tanks	1	M	Spills, leaks, or improper handling of materials stored in tanks
Oil or Hazardous Material Sites	3	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	Spills, leaks, or improper handling or storage of de-icing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	2	M	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	1	M	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	1	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	9	H	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	3	L	Spills, leaks, or improper handling or storage of hazardous materials and waste
Notes:			
<ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. 			
<p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>			

chemicals) indoors. Ann & Hope should review and adopt the key recommendations above and the following:

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff. Post labels as appropriate on raw materials and hazardous waste.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Work with your community to ensure that stormwater runoff is directed away from the well and is treated according to DEP guidance.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, refer to <http://www.state.ma.us/dep/bwp/dhm/files/sqgsum.pdf> for the Requirements for Small Quantity Generators.
- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. Instead, in areas using hazardous materials, discharge drains to a tight tank or sanitary sewer.
- ✓ Bring the floor drain into compliance with DEP Regulations (refer to attachment "Industrial Floor Drain Brochure").
- ✓ Remove hazardous materials from rooms with floor drains that drain to the ground or septic systems.
- ✓ Floor drains in areas where hazardous materials or wastes might reach them need to drain to a tight tank, be sealed, or be connected to a sanitary sewer.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.

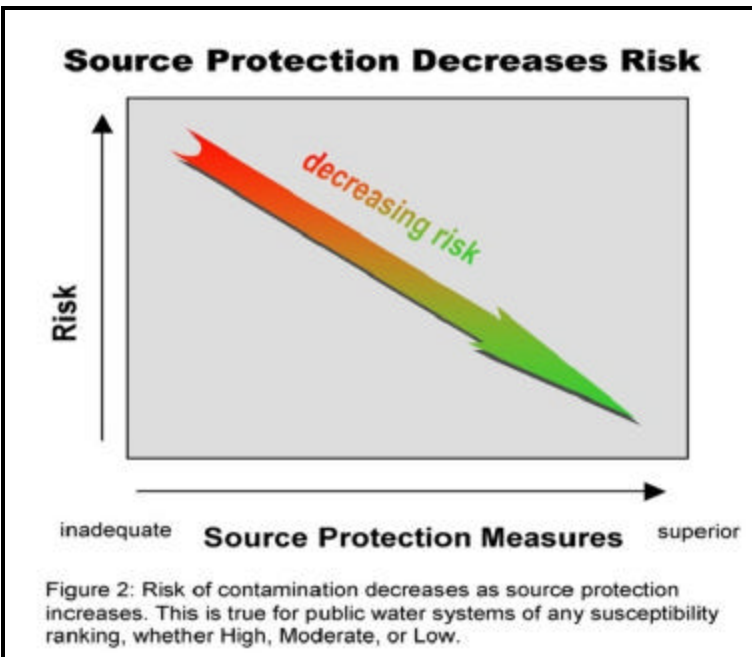
- ✓ Septic system components should be located, inspected, and maintained on a regular basis.
- ✓ Concrete pads should slope away from well and well casing should extend above ground.
- ✓ For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



Planning:

- ✓ Work with local officials in Millis to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Other land uses and activities within the IWPA are listed in Table 2. Refer to Table 2 for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses

and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to

reflect land use changes in the IWPA. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Attachments

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Area
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN SUNNY SPRING/ANN & HOPE WATER SUPPLY PROTECTION AREA

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
32963	ALEXANDERS COIN OP DRY CLEANING INC	917 MAIN ST	MILLIS	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
329731	GAF MATERIALS CORP	60 CURVE ST	MILLIS	PLANT	RES APPLICATION APPROVED
329731	GAF MATERIALS CORPORATION	60 CURVE ST	MILLIS	TURRPT	LARGE QUANTITY TOXICS USER
304149	IRVING TRUCKING & EXCAVATING COMPANY INC	38F ADAMS ST	MILLIS	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
207566	KEIVAN TOWFIGH	114 UNION ST	MILLIS	PLANT	AIR QUALITY PERMIT
305061	MCCARTHY BROTHERS CONSTRUCTION COMPANY	69 ADAMS ST	MILLIS	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
265505	MILLIS DPW	7 WATER ST	MILLIS	FULDSP	FUEL DISPENSER
298176	PHOTOSITE	14 MILLISTON RD	MILLIS	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325591	SHELL 137801	857 MAIN ST	MILLIS	FULDSP	FUEL DISPENSER
364447	TOSCO CORP	860 MAIN ST	MILLIS	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

UNDERGROUND STORAGE TANKS WITHIN SUNNY SPRING/ANN & HOPE WATER SUPPLY PROTECTION AREA

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
SHELL SERVICE STATION	857 MAIN ST	MILLIS	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	857 MAIN ST	MILLIS	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	857 MAIN ST	MILLIS	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	857 MAIN ST	MILLIS	GAS STATION	550	FUEL OIL
TOSCO EXXON	860 MAIN ST	MILLIS	GAS STATION	12000	GASOLINE
TOSCO EXXON	860 MAIN ST	MILLIS	GAS STATION	12000	GASOLINE
TOSCO EXXON	860 MAIN ST	MILLIS	GAS STATION	12000	GASOLINE
VERIZON MASSACHUSETTS	821 MAIN ST	MILLIS	UTILITIES	1000	DIESEL
VERIZON MASSACHUSETTS	821 MAIN ST	MILLIS	UTILITIES	1000	DIESEL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Sunny Spring/Ann & Hope Water Supply Protection Area

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0000091	857 Main St	Millis	Oil
3-0001003	860 Main St	Millis	Oil
3-0003323	40 Railroad Ave	Millis	--

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Natick Water Department

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Natick Water Department
<i>PWS Address</i>	75 West Street
<i>City/Town</i>	Natick, Massachusetts 01760
<i>PWS ID Number</i>	3198000
<i>Local Contact</i>	Jack Perodeau
<i>Phone Number</i>	508-647-6550

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

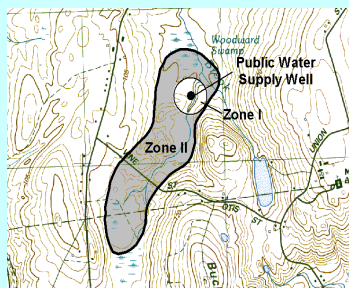
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 573

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Springvale Well #1	3198000-01G
Springvale Well #2 (proposed)	3198000-0BG
Springvale Well #3	3198000-02G
Springvale Well #4	3198000-07G
Evergreen Well #1	3198000-09G
Evergreen Well #3	3198000-13G

Zone II #: 534

Susceptibility: Moderate

<i>Well Names</i>	<i>Source IDs</i>
Morses Pond Well	3198000-03G

Zone II #: 549

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Pine Oaks Well #1	3198000-04G
Pine Oaks Well #2	3198000-05G
Pine Oaks Well #3	3198000-06G

Zone II #: 83

Susceptibility: Moderate

<i>Well Names</i>	<i>Source IDs</i>
Elm Bank Well #2	3198000-11G
Elm Bank Well #4	3198000-12G

The Natick Water Department (Natick) maintains and operates eleven public water supply sources. Natick's sources are located within the Charles River basin, and the Sudbury/Assabet/Concord (SuAsCo) River Basin. The wellhead protection area for Springvale Well #1 (01G), Springvale Well #2 (0BG), Springvale Well #3 (02G), Springvale Well #4 (07G), Evergreen Well #1 (09G), and Evergreen Well #3 (13G) is located in Natick, with a very small portion extending into Wayland; the wellhead protection area for Pine Oaks Well #1 (04G), Pine Oaks Well #2 (05G), and Pine Oaks Well #3 (06G) is located in Natick with a very small portion extending into Wellesley; the Morses Pond Well (03G) wellhead protection area is located entirely in Natick; and the Elm Bank Well #2 (11G) and Elm Bank Well #4 (12G) wellhead protection area is located in Dover and Wellesley. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map to view the boundaries of the Zone IIs.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The Zone IIs for Natick are primarily a mixture of forest and residential land uses, with a small portion consisting of commercial and industrial activities (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous Materials Storage and Use
3. Residential Land Uses
4. Transportation Corridors
5. Oil or Hazardous Material Contamination Sites
6. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for: Springvale Well #1 (01G), Springvale Well #2 (0BG), Springvale Well #3 (02G), Springvale Well #4 (07G), Evergreen Well #1 (09G), Evergreen Well #3 (13G), Pine Oaks Well #1 (04G), Pine Oaks Well #2 (05G),

and Pine Oaks Well #3 (06G) is high, based on the presence of at least one high threat land use within the water supply protection areas; the susceptibility ranking for Morses Pond Well (03G), Elm Bank Well #2 (11G), and Elm Bank Well #4 (12G) is moderate, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone Is – The Zone I for all of Natick’s wells is a 400 foot radius around each wellhead. Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department’s regulations and contain non-water supply activities such as homes and public roads. The Zone Is for the Springvale Wells contain parking for numerous cars, are intersected by Route 9 and active railroad tracks; and, the northern portion of the Morses Pond Well Zone I contains a sand and gravel mining operation.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP’s Zone I requirements.

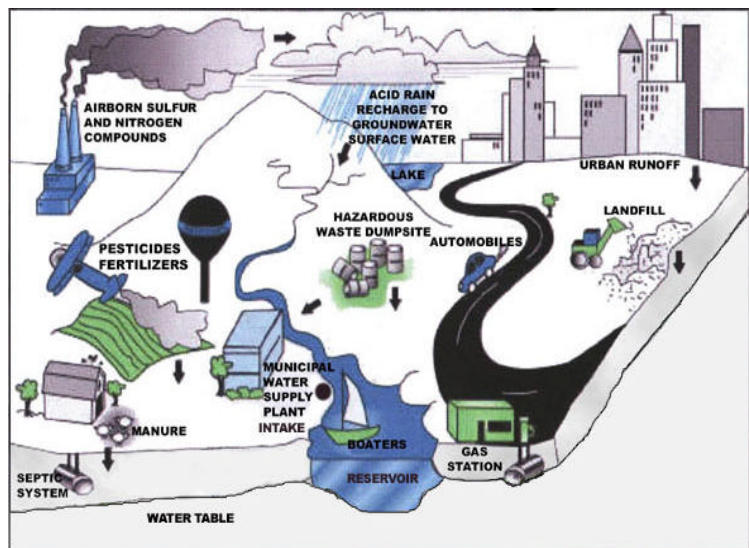


Figure 1: Sample watershed with examples of potential sources of contami-

- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Hazardous Materials Storage and Use –

Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs). Although many facilities within the watershed use BMPs, hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

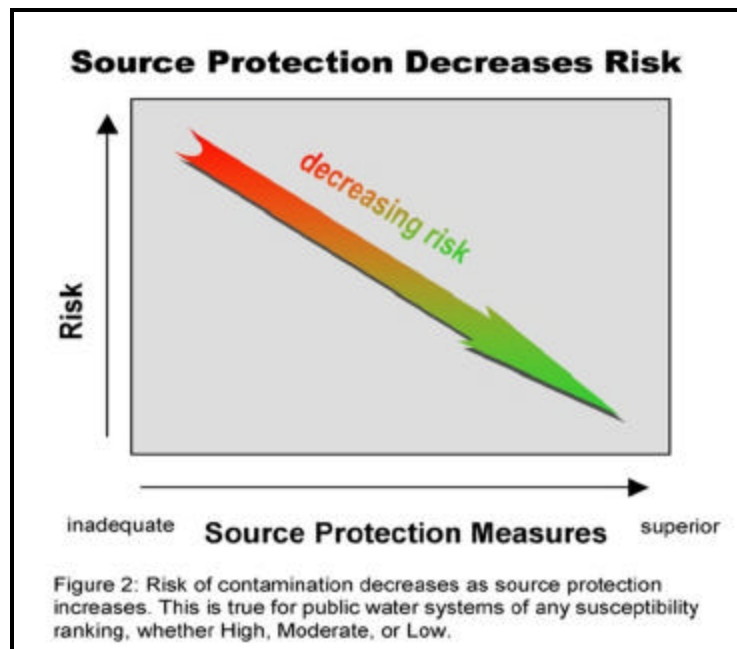
- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet “Businesses

Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.

- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

3. Residential Land Uses – Approximately 50% of the combined Zone IIs consist of residential areas, of which a portion is served by private septic systems, with the remainder being served by municipal sewerage. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources*
Commercial				
Gas Stations	4	H	573, 549	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	11	H	573, 549	Automotive fluids and solvents: spills, leaks, or improper handling
Cemeteries	1	M	573	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Dry Cleaners	1	H	573	Spills, leaks, or improper handling of solvents and wastes
Golf Courses	1	M	573	Over-application or improper handling of fertilizers or pesticides
Laundromats	1	L	573	Improper management of wash water
Photo Processors	1	H	573	Spills, leaks, or improper handling or storage of photographic chemicals
Railroad Tracks and Yards	1	H	573	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Research Laboratories	1	M	573	Spills, leaks, or improper handling or storage of laboratory chemicals and wastes
Sand and Gravel Mining/ Washing	1	M	534	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial				
Industry/Industrial Parks	1	H	549	Spills, leaks, or improper handling or storage of industrial chemicals and metals
Residential				
Fuel Oil Storage (at residences)	100+	M	All	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	100+	M	All	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	100+	M	All	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous				
Aquatic Wildlife	100+	L	All	Microbial contaminants
Fishing/Boating	Numerous	L	573, 83	Fuel and other chemical spills, microbial contaminants

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources*
Miscellaneous				
Large Quantity Hazardous Waste Generators	2	H	573	Spills, leaks, or improper handling or storage of hazardous materials and waste
Military Facilities (Past And Present) Type: <u>RD &E</u>	1	H	573	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump sites
Oil or Hazardous Material Sites	9	--	573, 549	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	4	M	All	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	2	M	573, 549	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	100+	L	All	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way Type: <u>MWRA Sewer Line</u>	1	L	83	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	4	M	573, 549, 83	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	29	H	573, 549	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	9	L	573, 549	Spills, leaks, or improper handling or storage of hazardous materials and waste
<p>Table 2 Notes:</p> <ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

4. Transportation Corridors - Transportation corridors and other paved and unpaved local roads cross through the water supply protection areas. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins.

Transportation Corridor Recommendations:

- ✓ Wherever possible, ensure that drains discharge stormwater outside of the Zone I.
- ✓ Identify stormwater drainage systems along transportation corridors. If maps aren’t yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained. Review storm drainage maps with emergency response teams.
- ✓ Work with the Town and State to best manage stormwater in the Zone II. BMPs include street sweeping, vegetative swales, and regular catch basin inspection, cleaning and maintenance.

5. Presence of Oil or Hazardous Material Contamination Sites – The Zone IIs for Natick’s wells contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 3-0002906, 3-0000266, 3-0013294, 3-0002473, 3-0015672, 3-0003672, 3-0019387, 3-0003289, 3-0012757, 3-0004232, and 3-0011448. Refer to the attached maps and Appendix C for more information on these sites, and for information on DEP Tier Classified Oil and/or Hazardous Material Release Sites within the watershed for the Shawsheen River.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

6. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the Town of Natick has a groundwater protection bylaw that meets DEP’s Groundwater Protection regulations 310 CMR 22.21. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Coordinate efforts with the Towns of Wayland and Wellesley to include Natick’s source protection areas in local wellhead protection controls. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Zone II are included in Table 2. Refer to Table 2 and Appendix B for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Actively enforcing existing wellhead protection control
- Providing household hazardous waste collection facility
- Providing wellhead protection information through municipal newsletter

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Develop and implement a Wellhead Protection Plan.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES (Evergreen Wells, Pine Oaks Wells, Elm Bank Wells)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Springvale Wells, Morses Pond Well)	To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements. Investigate options for gaining ownership or control of the Zone A.
Are the Zone Is posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone Is regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES (Evergreen Wells, Pine Oaks Wells, Elm Bank Wells)	Monitor for any new non-water supply activities in Zone I, and investigate options for removing these activities.
	NO (Springvale Wells, Morses Pond Well)	Monitor prohibited activities in Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have local controls that meet Wellhead Protection Regulations 310 CMR 22.21(2)?	YES	The Town's bylaw meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	Partial	Work with the Towns of Wayland and Wellesley to encourage them to adopt local controls that include Natick's wellhead protection area.
Planning		
Does the PWS have a wellhead protection plan?	NO	Develop and implement a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	Some	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial uses within the Zone IIs.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone IIs. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Regulated Facilities within the Water Supply Protection Area
- B. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- C. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's NERO at (617) 654-6535 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN NATICK WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
364435	BERNARDI AUDI	521 WORCESTER RD	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
281430	BERNARDI HONDA VW AUDI INC	960 WORCESTER RD	NATICK	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
126432	BEST PETROLEUM CO INC	924 WORCESTER ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
376886	CIRCLE K STORE 2704500	MA TURNPIKE E MM 117 6	NATICK	FULDSP	FUEL DISPENSER
369293	CLINICAL MICRO ARRAY	6 HURON DR	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
177623	EXXON CO USA 35592	218 WORCESTER RD	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
29609	FOREIGN MOTORS WEST INC	253 NORTH MAIN ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
318139	FOREIGN MOTORS WEST INC	28 RUTLEDGE RD	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
358501	HESS 21515	207 WORCESTER RD	NATICK	FULDSP	FUEL DISPENSER
28224	KILLDEER ENTERPRISES INC	840 WORCESTER RD	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
362984	NATICK SATURN INC	1000 WORCESTER RD	NATICK	HANDLR	LARGE QUANTITY GENERATOR OF WASTE OIL OR PCBS
127406	NATICK SHELL SERVICE INC	225 NORTH MAIN ST	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
133791	PERICOMP CORP	14 HURON DR	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
284795	PHOENIX DIAGNOSTICS INC	8 TECH CIR	NATICK	DISCH	MWRA SEWER CONNECTION
331219	PHOTO QUICK DBA	843 WORCESTER RD	NATICK	DISCH	MWRA SEWER CONNECTION
297087	SAGE LABORATORIES INC	11 HURON ST	NATICK	DISCH	MWRA SEWER CONNECTION
338018	SEQUITUR INC	14 TECH CIR	NATICK	DISCH	MWRA SEWER CONNECTION
325599	SHELL 137805	225 NORTH MAIN ST	NATICK	FULDSP	FUEL DISPENSER
258011	SUNNEX INC	3 HURON DR	NATICK	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
337470	SUNOCO 0402 7363	924 WORCESTER RD	NATICK	FULDSP	FUEL DISPENSER
337470	SUNOCO SERVICE STATION	924 WORCESTER RD	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
320133	TEXACO SERVICE STATION	226 WORCESTER RD	NATICK	DISCH	AIR QUALITY PERMIT
320133	TEXACO SERVICE STATION	226 WORCESTER RD	NATICK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
130698	US ARMY SOLDIER SYSTEMS CENTER	15 KANSAS ST	NATICK	FULDSP	FUEL DISPENSER
130698	US ARMY SOLDIER SYSTEMS COMAND	15 KANSAS ST	NATICK	DISCH	MWRA SEWER CONNECTION
130698	US ARMY SOLDIER SYSTEMS COMMAND	15 KANSAS ST	NATICK	PLANT	RES APPLICATION APPROVED
130698	US ARMY SOLDIER SYSTEMS COMMAND	15 KANSAS ST	NATICK	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
338647	VIDEO PARADISE OF NATICK	21 MAIN ST	NATICK	DISCH	MWRA SEWER CONNECTION
338649	WELLESLEY NATICK VETERINARY HOSPITAL	359 WORCESTER ST	NATICK	DISCH	MWRA SEWER CONNECTION

UNDERGROUNDWATER STORAGE TANKS WITHIN NATICK WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
CIRCLE K STORE 2704500	MA TURNPIKE E MM 117 6	NATICK	GAS STATION	6000	DIESEL
CIRCLE K STORE 2704500	MA TURNPIKE E MM 117 6	NATICK	GAS STATION	10000	GASOLINE
CIRCLE K STORE 2704500	MA TURNPIKE E MM 117 6	NATICK	GAS STATION	10000	GASOLINE
CIRCLE K STORE 2704500	MA TURNPIKE E MM 117 6	NATICK	GAS STATION	10000	GASOLINE
CIRCLE K STORE 2704500	MA TURNPIKE E MM 117 6	NATICK	GAS STATION	12000	GASOLINE
HESS 21515	207 WORCESTER RD	NATICK	GAS STATION	600	OTHER
HESS 21515	207 WORCESTER RD	NATICK	GAS STATION	10000	GASOLINE
HESS 21515	207 WORCESTER RD	NATICK	GAS STATION	10000	GASOLINE
HESS 21515	207 WORCESTER RD	NATICK	GAS STATION	10000	GASOLINE
HESS 21515	207 WORCESTER RD	NATICK	GAS STATION	10000	DIESEL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
HESS 21515	207 WORCESTER RD	NATICK	GAS STATION	6000	KEROSENE
SHELL 137805	225 NORTH MAIN ST	NATICK	GAS STATION	12000	GASOLINE
SHELL 137805	225 NORTH MAIN ST	NATICK	GAS STATION	12000	GASOLINE
SHELL 137805	225 NORTH MAIN ST	NATICK	GAS STATION	12000	GASOLINE
SHELL 137805	225 NORTH MAIN ST	NATICK	GAS STATION	1000	WASTE OIL
SUNOCO 0402 7363	924 WORCESTER RD	NATICK	GAS STATION	10000	GASOLINE
SUNOCO 0402 7363	924 WORCESTER RD	NATICK	GAS STATION	10000	GASOLINE
SUNOCO 0402 7363	924 WORCESTER RD	NATICK	GAS STATION	8000	GASOLINE
SUNOCO 0402 7363	924 WORCESTER RD	NATICK	GAS STATION	8000	DIESEL
TEXACO SERVICE STATION	226 WORCESTER RD	NATICK	GAS STATION	12000	GASOLINE
TEXACO SERVICE STATION	226 WORCESTER RD	NATICK	GAS STATION	10000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
TEXACO SERVICE STATION	226 WORCESTER RD	NATICK	GAS STATION	10000	GASOLINE
TEXACO SERVICE STATION	226 WORCESTER RD	NATICK	GAS STATION	8000	DIESEL
US ARMY SOLDIER SYSTEMS CENTER	15 KANSAS ST	NATICK	FEDERAL/MILITARY	20000	FUEL OIL
US ARMY SOLDIER SYSTEMS CENTER	15 KANSAS ST	NATICK	FEDERAL/MILITARY	20000	FUEL OIL
US ARMY SOLDIER SYSTEMS CENTER	15 KANSAS ST	NATICK	FEDERAL/MILITARY	20000	FUEL OIL
US ARMY SOLDIER SYSTEMS CENTER	15 KANSAS ST	NATICK	FEDERAL/MILITARY	20000	FUEL OIL
US ARMY SOLDIER SYSTEMS CENTER	15 KANSAS ST	NATICK	FEDERAL/MILITARY	20000	FUEL OIL
US ARMY SOLDIER SYSTEMS CENTER	15 KANSAS ST	NATICK	FEDERAL/MILITARY	20000	FUEL OIL
US ARMY SOLDIER SYSTEMS CENTER	15 KANSAS ST	NATICK	FEDERAL/MILITARY	2000	GASOLINE
US ARMY SOLDIER SYSTEMS CENTER	15 KANSAS ST	NATICK	FEDERAL/MILITARY	2000	DIESEL

FOR MORE INFORMATION ON UNDERGROUND WATER DISCHARGE STORAGE TANKS, VISIT THE MASSACHUSETTS DEPARTMENT OF FIRE SERVICES WEB SITE: [HTTP://WWW.STATE.MA.US/DFS/UST/USTHOME.HTM](http://www.state.ma.us/dfs/ust/usthome.htm)

NOTE: THIS APPENDIX INCLUDES ONLY THOSE FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA(S) THAT MEET STATE REPORTING REQUIREMENTS AND REPORT TO THE APPROVED APPROPRIATE AGENCIES. ADDITIONAL FACILITIES LOCATED WITHIN THE WATER SUPPLY PROTECTION AREA(S) SHOULD BE CONSIDERED IN LOCAL DRINKING WATER SOURCE PROTECTION PLANNING.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Natick Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0011448	8 Richard Rd	Natick	Oil
3-0002473	Kansas St	Natick	--
3-0002906	Off Massachusetts Turnpike	Natick	--
3-0003289	357 Worcester St	Natick	--
3-0003672	229 North Main	Natick	Hazardous Material
3-0004232	Oak And Bacon Sts	Natick	--
3-0012757	193 Worcester Rd	Natick	Oil
3-0013294	Kansas St	Natick	Oil
3-0015672	891 Worcester Rd	Natick	Oil And Hazardous Material
3-0019387	843 Worcester Turnpike	Natick	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Needham Water Division

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Needham Water Division
<i>PWS Address</i>	470 Dedham Avenue
<i>City/Town</i>	Needham, Massachusetts 02492
<i>PWS ID Number</i>	3199000
<i>Local Contact</i>	Bill Wanberg – Assistant Superintendent
<i>Phone Number</i>	(781) 416-4071

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

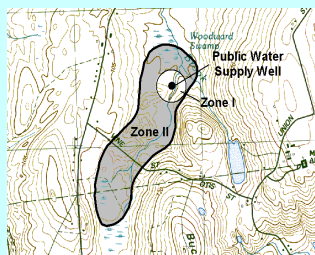
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Zone II #: 87

Susceptibility: High

Well Names	Source IDs
Charles River Well #1	3199000-01G
Charles River Well #3	3199000-02G
Charles River Well #2	3199000-04G

The wells for the Needham Water Division are all located within the same water supply protection area, with portions extending into the towns of Dover, Natick, and Wellesley. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The Needham Water Division purchases a portion of its water supply from the Massachusetts Water Resources Authority (MWRA). Attached, please find a copy of the SWAP report prepared for the MWRA sources.

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone II for Needham is a mixture primarily of residential, wetlands, and forest land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Residential land uses
3. Oil or Hazardous Material Contamination Sites
4. Comprehensive wellhead protection planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone Is – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts Drinking Water Regulations 310 CMR 22.00 requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The following non-water supply activities occur in the Zone Is of the system wells:

Charles River Well #1 (3199000-01G) - There are three houses (one of which is on a private septic system), a portion of a local road, and a portion of the town owned nursery in the Zone I of this well.

Charles River Well #2 (3199000-04G) - There is a portion of a house lot, a portion of a local road, and a portion of the town owned nursery in the Zone I of this well.

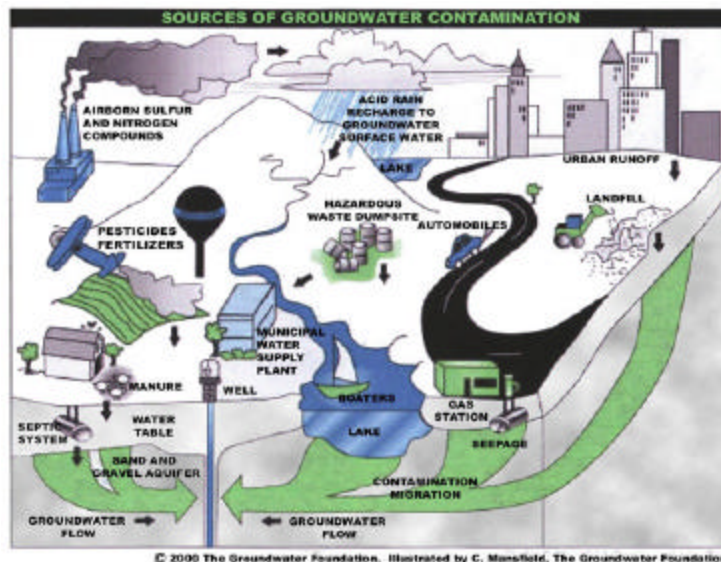
Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ Agreement Options - Attempt to obtain a *Memorandum of Understanding*.

Memorandum of Understanding (MOU) is an agreement between the landowner and public water supplier in which the landowner agrees not to engage in specific threatening activities. The MOU should be specific to the land use or activity. For instance, if the land is residential with a septic system the owner could agree not to place chemicals, petroleum products, or other hazardous or toxic substances, including septic system cleaners into the septic system, and that the system will be pumped at a specific frequency. The application of lawn care chemicals could also be restricted. Understanding how activity threatens drinking water quality is an important component of developing an effective MOU.

2. Residential Land Uses – Approximately 34% of the Zone II consists of residential areas. None of the areas have public sewers, and so all use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- ◆ **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- ◆ **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- ◆ **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.



- ◆ **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Presence of Oil or Hazardous Material Contamination Sites – The Zone II for the Charles River Wells contains a DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Numbers 3-0001877. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

4. Protection Planning – Needham has water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

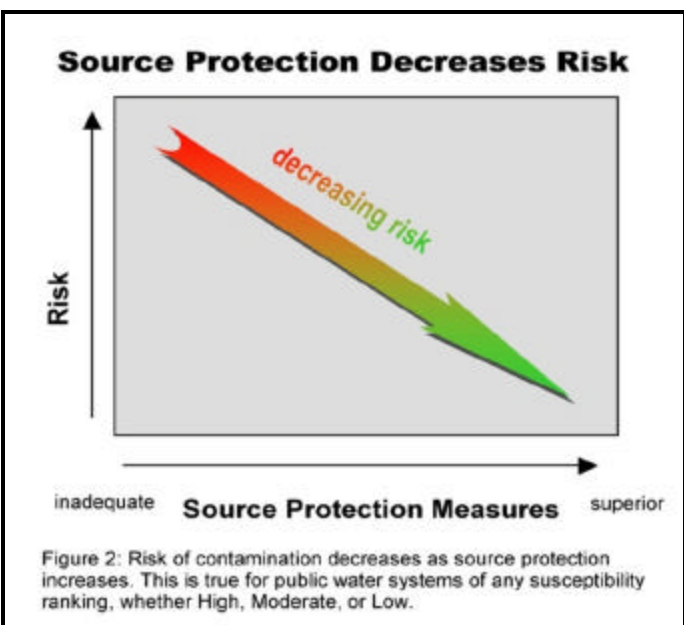
a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ If local controls do not regulate floordrains, be sure to include floordrain controls that meet 310 CMR 22.21(2).
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). If there are no local controls or they do not meet the current regulations, adopt controls that meet 310 CMR 22.21(2). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations



Current Land Uses and Source Protection:

As with many water supply protection areas, the system’s Zone II contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Large scale sewerage project that includes a majority of the Zone II.
- Enforcement of existing Water Resource Protection District Bylaw.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Potential Source of Contamination
Agriculture			
Nurseries	1	M	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Commercial			
Golf Courses	1	M	Over-application or improper handling of fertilizers or pesticides
Residential			
Fuel Oil Storage (at residences)	Numerous	M	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	Numerous	M	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	Numerous	M	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous			
Aboveground Storage Tanks	4	M	Spills, leaks, or improper handling of materials stored in tanks
Oil or Hazardous Material Sites	1	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Stormwater Drains/Retention Basins	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Water Supply Protection Area % that is Sewered = 99%			
Notes:			
1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.			
2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.			
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.			
THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.			

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased groundwater monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Develop and implement a Wellhead Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- ◆ Protection Recommendations
- ◆ Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- ◆ Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES (Charles River Well #3)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Charles River Well #1 and Well #2)	Investigate options for removing septic system, and for enacting conservation restrictions. Take measures to prevent additional non-water supply activities from occurring in the Zone I.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES (Charles River Well #3)	Continue monitoring for non-water supply activities in Zone Is.
	NO (Charles River Well #1 and Well #2)	Monitor non-water supply activities in Zone Is, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town's bylaw meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	NO	Request that municipal officials in Dover, Natick, and Wellesley develop land use restrictions that meet 310 CMR 22.21(2).
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	N/A	There are no commercial or industrial activities in the Zone II for these wells. BOH does inspect septic systems.
Does the PWS provide wellhead protection education?	SOME	Currently, outreach is done through the annual Consumer Confidence Report, and direct mailings. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Needham Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0001877	Elm Bank	Dover	Oil And Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Byfield Water District

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Byfield Water District
<i>PWS Address</i>	P.O. Box 64
<i>City/Town</i>	Byfield, Massachusetts 01922
<i>PWS ID Number</i>	3205001
<i>Local Contact</i>	Paul Colby - Director
<i>Phone Number</i>	(978) 462-3023

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

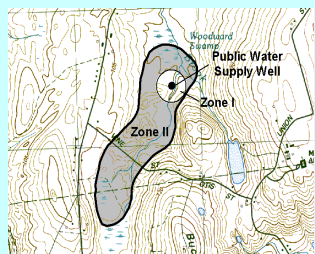
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 217

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Forest Street Well #3	3205001-04G

Zone II #: 526

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Larkin Street Well #1	3205001-02G

The wells for the Byfield Water District are located within two separate water supply protection areas, with portions extending into the towns of Georgetown, Groveland, and West Newbury. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone IIs for Byfield are a mixture primarily of residential, forest, and wetlands land uses, with a small portion consisting of other uses such as recreation, agriculture, and commercial (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Hazardous materials storage and use
2. Residential land uses
3. Comprehensive wellhead protection planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Hazardous Materials Storage and Use – Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground and Aboveground storage tanks (USTs and ASTs). If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP’s for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

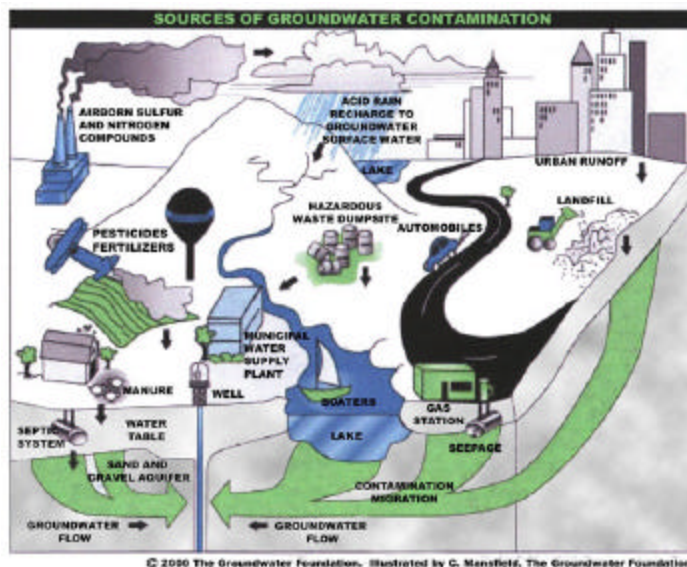
2. Residential Land Uses – If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they could be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.



3. Protection Planning – The Town of Newbury has water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Adopting land use controls that meet DEP's Drinking Water Regulations

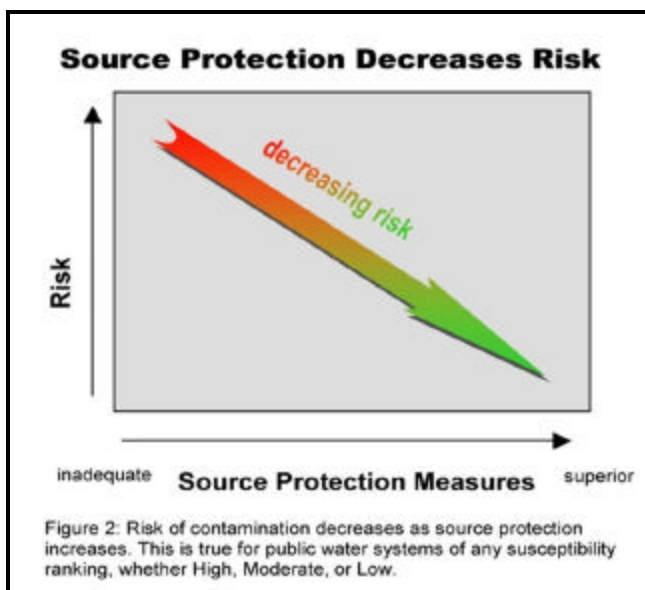
Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead Protection Plan.

Resources for Drinking Water Source Protection:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.



DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Commercial				
Gas Stations	1	H	526	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	2	H	217, 526	Automotive fluids, and solvents: spills, leaks, or improper handling
Repair Shops (Engine, Appliances, Etc.)	2	H	217, 526	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Residential				
Fuel Oil Storage (at residences)	Numerous	M	217, 526	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	217, 526	Pesticides and Fertilizers: over-application or improper storage and disposal
Septic Systems/ Cesspools	Numerous	M	217, 526	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous				
Aquatic Wildlife	Numerous	L	217, 526	Microbial contaminants
Fishing/Boating	Numerous	L	217, 526	Fuel and other chemical spills, microbial contaminants
Stormwater Drains/ Retention Basins	1	L	526	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	1	M	526	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	3	H	526	Spills, leaks, or improper handling stored materials
Very Small Quantity Hazardous Waste Generator	1	L	217, 526	Spills, leaks, or improper handling or storage of hazardous materials and waste

Water Supply Protection Area % that is Sewered = 0%

Notes:

- When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
- For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
- For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.

THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

Conclusions:

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

- 1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
- 2. MA DEP SWAP Strategy
- 3. Land Use Pollution Potential Matrix
- 4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased groundwater monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES	Continue monitoring non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town of Newbury's "Aquifer Protection District" bylaw meets DEP's best efforts for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	Unknown	Work with the towns of Georgetown, Groveland and West Newbury to develop land use restrictions that meet 310 CMR 22.21(2), and to include Byfield's Zone IIs in their wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN BYFIELD WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
275699	BYFIELD A L PRIME	17 CENTRAL ST	BYFIELD	FUEL DISPENSER	FUEL DISPENSER
35488	STEVE'S AUTO SERVICE	52 MAIN ST	BYFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR

UNDERGROUND STORAGE TANKS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
BYFIELD A L PRIME	17 CENTRAL ST	BYFIELD	GAS STATION	10000	GASOLINE
BYFIELD A L PRIME	17 CENTRAL ST	BYFIELD	GAS STATION	10000	GASOLINE
BYFIELD A L PRIME	17 CENTRAL ST	BYFIELD	GAS STATION	6000	DIESEL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Newburyport Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Newburyport Water Department
<i>PWS Address</i>	City Hall/P.O. Box 550
<i>City/Town</i>	Newburyport, Massachusetts 01950
<i>PWS ID Number</i>	3206000
<i>Local Contact</i>	Paul Colby
<i>Phone Number</i>	(978) 465-4466

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

<i>Groundwater Sources</i>	
<i>Well Name</i>	<i>Source ID#</i>
Zone II #: 540	
Susceptibility: High	
Well #1	3206000-01G
Well #2	3206000-02G

<i>Surface Water Sources</i>	
<i>Source Name</i>	<i>Susceptibility: High</i>
Artichoke Reservoir	3206000-01S
Indian Hill	3206000-02S
Bartlett Spring Pond	3206000-03S

The wells for the Newburyport Water Department are located within the same water supply protection area. Each well has a Zone I radius of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The reservoirs for the Newburyport Water Department are located within two separate yet adjoining water supply protection areas, with a majority of the Artichoke Reservoir water supply protection area extending into the town of West Newbury, and all of the Indian Hill water supply protection area being in the town of West Newbury. Newburyport also has Bartlett Spring Pond as an emergency source, and is in the process of obtaining approval from DEP to make it an active source.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone II and Zone Cs for Newburyport are primarily a mixture of residential, agriculture, and forest, with a small portion of the Zone II consisting of recreational land uses (refer to attached map for details). Land uses and activities

that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

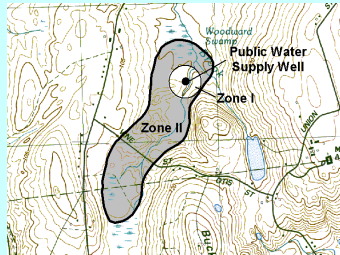
Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Activities in Zone A
3. Golf Course and Agricultural Activities
4. Residential Land Uses
5. Transportation Corridors
6. Oil or Hazardous Material Contamination Sites
7. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



1. Activities in Zone I – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The following non-water supply activities occur in the Zone Is of the system wells:

Well #2 - Both the uppermost northeast and northwest section of the Zone I have lawns associated with private residences. Also, Ferry Road cuts through the uppermost northeast section.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

- ✓ Agreement Options - Attempt to obtain a *Memorandum of Understanding*.

Memorandum of Understanding (MOU) is an agreement between the landowner and public water supplier in which the landowner agrees not to engage in specific threatening activities. The MOU should be specific to the land use or activity. For instance, if the land is residential with a septic system the owner could agree not to place chemicals, petroleum products, or other hazardous or toxic substances, including septic system cleaners into the septic system, and that the system will be pumped at a specific frequency. The application of lawn care chemicals could also be restricted. Understanding how activity threatens drinking water quality is an important component of developing an effective MOU.

2. Activities in Zone A - Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; uncontained storage of fertilizers, manure, domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and un-permitted and unauthorized activities. Wild animals, farm animals, and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. The following activities

occur in the Zone A of the system's reservoirs:

Artichoke Reservoir - There are livestock operations, manure storage and spreading, and aquatic wildlife throughout the Zone A of the reservoir and tributaries to the reservoir; numerous homes exist throughout the Zone A of the reservoir and tributaries to the reservoir, most of which are on private septic systems; shoreline fishing occurs at accessible areas throughout the Zone A of the reservoir; and Route 95 passes through a small section of the Zone A of a tributary to the reservoir.

Indian Hill Reservoir - There are livestock operations, manure storage and spreading, and aquatic wildlife throughout the Zone A of the reservoir and tributaries to the reservoir; numerous homes exist throughout the Zone A of the reservoir and tributaries to the reservoir, most of which are on private septic systems; and shoreline fishing occurs at accessible areas throughout the Zone A of the reservoir.

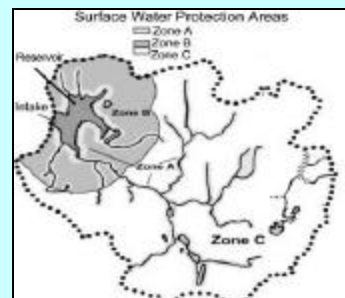
Bartlett Spring Pond - A vehicle maintenance area, an abandoned underground storage tank, and one sludge lagoon associated with the Spring Lane Water Treatment Plant are located in the Zone A of the Bartlett Spring Pond. There is also a house and the possibility of an associated septic system located in the Zone A.

Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

3. Golf Course and Agricultural Activities – Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed of. If not contained or applied properly, animal waste from barnyards, manure pits and field application is a potential source of contamination to ground and surface water. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Course and Agricultural Activities Recommendations:

- ✓ Encourage owners and operators of agricultural operations to consult with the Massachusetts Department of Food and Agriculture’s regarding “On-Farm Strategies to Protect Water Quality - An Assessment & Planning Tool for Best Management Practices” (December 1996) for information about technical and financial assistance programs related to erosion and sediment control and nutrient, pest, pesticide, manure, waste, grazing, and irrigation management.
- ✓ Partner with farmers in your protection areas to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ Encourage the farmers and golf course managers to incorporate an **Integrated Pest Management (IPM)** approach into their pest management program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other agricultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote **Best Management Practices (BMPs)** for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Work with farmers and golf courses to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.

5. Residential Land Uses – Approximately 25% of the combined Zone II and Zone Cs consist of residential areas. Ninety-nine percent of the Zone II is served by municipal sewerage, however, none of the Zone C areas have public sewers, therefore, all use on-site septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.

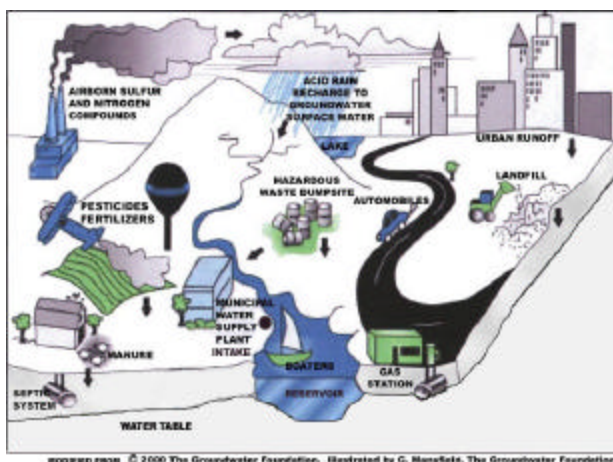


Figure 1: Sample watershed with examples of potential sources of contamination

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

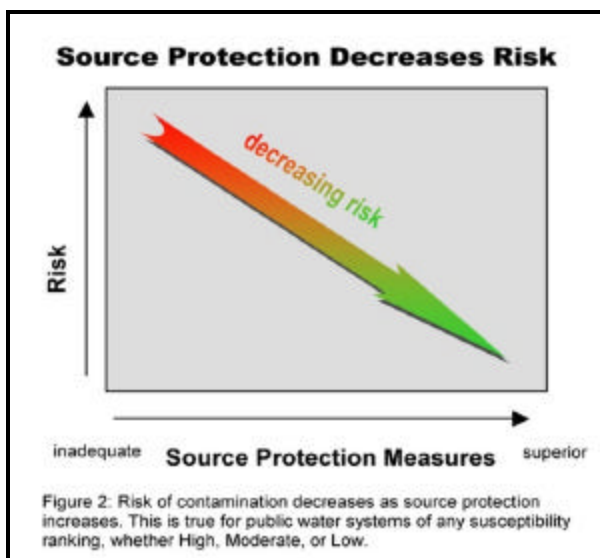
Land Uses	Quantity	Threat	Zone II Number	Zone C Source ID	Potential Contaminant Sources*
Agricultural					
Dairy Farms	1	M		01S	Improper handling of manure (microbial contaminants)
Fertilizer Storage or Use	1	M	540		Leaks, spills, improper handling, or over-application of fertilizers
Livestock Operations	4	M		01S, 02S	Improper handling of manure (microbial contaminants)
Manure Storage or Spreading	4	H		01S, 02S	Improper handling of manure (microbial contaminants)
Pesticide Storage or Use	2	H	540	03S	Leaks, spills, improper handling, or over-application of pesticides
Commercial					
Bus and Truck Terminals	1	H		01S	Spills, leaks, or improper handling of fuels and maintenance chemicals
Cemeteries	1	M		01S	Leaks, spills, improper handling, or over-application of pesticides and fertilizers; historic embalming fluids (such as arsenic)
Golf Courses	1	M	540		Over-application or improper handling of fertilizers or pesticides
Residential					
Fuel Oil Storage (at residences)	Numerous	M	540	01S, 02S, 03S	Spills, leaks, or improper handling of fuel oil
Lawn Care/ Gardening	Numerous	M	540	01S, 02S, 03S	Over-application or improper storage and disposal of pesticides
Septic Systems/ Cesspools	Numerous	M		01S, 02S, 03S	Microbial contaminants, and improper disposal of hazardous chemicals
	5		540		
Miscellaneous					
Aquatic Wildlife	Numerous	L		01S, 02S	Microbial contaminants

Land Uses	Quantity	Threat	Zone II Number	Zone C Source ID	Potential Contaminant Sources*
Miscellaneous					
Fishing	2	L		01S, 02S	Fuel and other chemical spills, microbial contaminants
Oil or Hazardous Material Sites	2	--		01S	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road And Maintenance Depots	2	M		01S, 03S	Spills, leaks, or improper handling or storage of deicing materials, automotive fluids, fuel storage, and other chemicals
Stormwater Drains/ Retention Basins	Multiple	L	540	03S	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	1	M	540	01S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	3	H		01S, 03S	Spills, leaks, or improper handling of stored materials
Water Treatment Sludge Lagoon	2	M		03S	Improper management of sludge and wastewater

Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.



Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Transportation Corridors - Route 95 runs through the middle of the Zone II for Wells 1 & 2, and through the southeast portion of the Zone C for the Artichoke Reservoir. There are numerous local roads throughout the Zone II and Zone Cs. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash in to catchbasins.

Transportation Corridor Recommendations:

- ✓ Identify stormwater drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge stormwater outside of the Zone II and Zone Cs.
- ✓ Work with the City and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Work with City and State emergency response teams to ensure that any spills within the Zone II and Zone Cs can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with city officials to investigate mapping options such as those in the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

6. Presence of Oil or Hazardous Material Contamination Sites – The Zone C for the Artichoke Reservoir contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0017727 and 3-0019356. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

7. Protection Planning – Currently, the City does have water supply protection controls that are implemented through a Water Resource Protection District Ordinance. Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir. A Water Resource Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan".
- ✓ Coordinate efforts with local officials to compare local wellhead and surface water protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2) and Surface Water Supply Protection Regulations 310 CMR 22.20B and 310 CMR 22.20C. If there are no local controls or they do not meet the current regulations, adopt controls that meet 310 CMR 22.21(2), 310 CMR 22.20B and 310 CMR 22.20C. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floordrains, be sure to include floordrain controls that meet 310 CMR 22.21(2).

Other land uses and activities within the Zone II and Zone Cs that are potential sources of contamination are included in Table 2. Refer to Appendix A for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system's Zone II and Zone Cs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water

Top 5 Reasons to Develop a Local Wellhead and Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Supply Protection Areas through:

- Pursuing the purchase of property within the surface water protection areas that is not currently owned by the Newburyport Water Department.
- Receiving a Source Protection Grant through DEP to develop a comprehensive surface water supply protection plan.
- Adopting local land use controls for wellhead and surface water protection.
- Requesting that the Town of West Newbury adopt land use controls that meet 310 CMR 22.20B and 310 CMR 22.20C.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I and Zone A regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and Zone C and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known

oil or contamination sites.

- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead and Surface Water Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A. DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The Department’s Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection’s Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP’s Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and/or Zone A?	YES (Well #1)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Well #2, Artichoke and Indian Hill Reservoirs, and Bartlett Spring Pond)	To the extent possible, remove non-water supply activities from each Zone I and prohibited activities in Zone A to comply with DEP's Zone I and Zone A requirements. Investigate options for gaining ownership or control of the Zone I for groundwater sources.
Are the Zone 1 and Zone A posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone 1 and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone 1 and Zone A?	YES (Well #1)	Continue monitoring for non-water supply activities in Zone As.
	NO (Well #2, Artichoke and Indian Hill Reservoirs, and Bartlett Spring Pond)	Monitor non-water supply activities in Zone I and prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)?	POSSIBLY	Work with the Planning Board and the City Council to review the existing Water Resource Protection District Ordinance to determine if it meets land use controls required by 310 CMR 22.21(2) and 310 CMR 22.20B & C. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Request that municipal officials in West Newbury develop land use restrictions that meet 310 CMR 22.20B and 310 CMR 22.20C.
Planning		
Does the PWS have a local surface water and wellhead protection plan?	NO	Develop a surface water supply protection plan. Follow "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ . Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed and wellhead protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Floor drain inspection was conducted in conjunction with DEP. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II and Zone C.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN NEWBURYPORT WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
310130	MA HIGHWAY	SCOTLAND ROAD	NEWBURY	FUEL DISPENSER	FUEL DISPENSER

UNDERGROUND STORAGE TANKS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
MA HIGHWAY	SCOTLAND ROAD	NEWBURY	ROAD AND MAINTENANCE DEPOT	?	?
SALTER TRANSPORTATION	SCOTLAND ROAD	NEWBURY	BUS TERMINAL	6000	GASOLINE
SALTER TRANSPORTATION	SCOTLAND ROAD	NEWBURY	BUS TERMINAL	6000	DIESEL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Newburyport Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0017727	Scotland Road	Newbury	Oil
3-0019356	164 Indian Hill Road	West Newbury	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Norfolk Water Department

What is SWAP?

The Source Water Assessment Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Norfolk Water Department
<i>PWS Address</i>	1 Liberty Lane/P.O. Box 264
<i>City/Town</i>	Norfolk, Massachusetts 02056
<i>PWS ID Number</i>	3208000
<i>Local Contact</i>	Jim Martin - Superintendent
<i>Phone Number</i>	(508) 528-1412

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

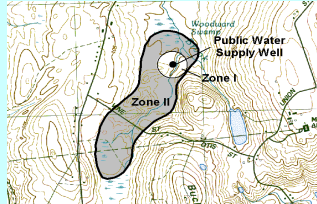
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

Zone II #: 340

Susceptibility: High

Well Names	Source IDs
Gold Street Well #1	3208000-01G

Zone II #: 118

Susceptibility: High

Well Names	Source IDs
Spruce Road Well #2	3208000-02G

The wells for the Norfolk Water Department are located within two separate water supply protection areas, with portions of Zone II #118 extending into the town of Wrentham. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone IIs for Norfolk are a mixture primarily of residential and forested land uses, with a small portion consisting of agricultural use (refer to attached map for details).

Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Residential Land Uses
2. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Residential Land Uses – Approximately 32% of the combined Zone IIs consist of residential areas, all of which are still served by private septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.

- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

2. Protection Planning – Norfolk has water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

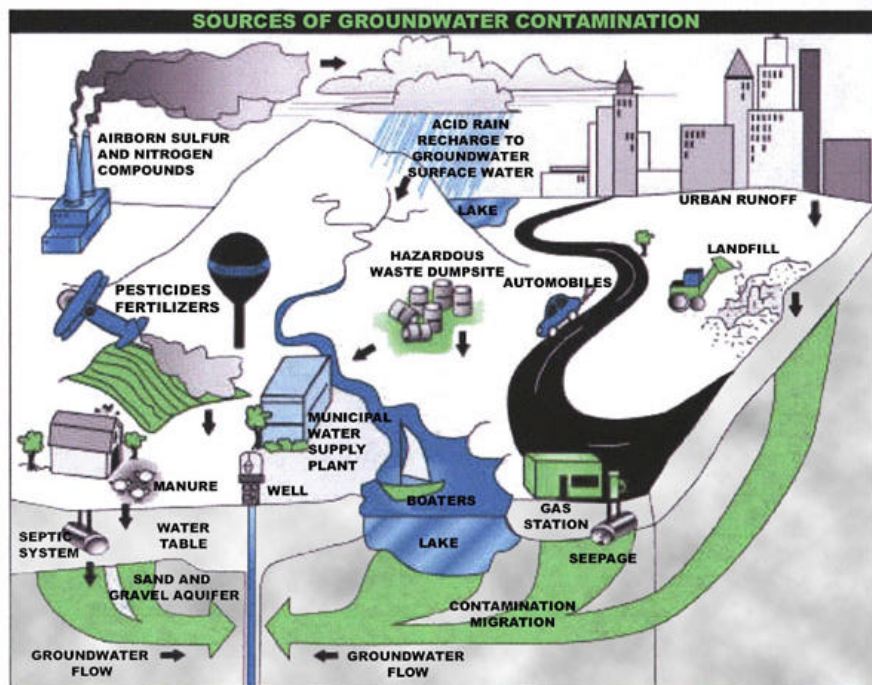
- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21 (2). Occasionally update local controls to meet changes in current regulations. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. Norfolk is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Adopting a local bylaw that meets DEP's prohibited land uses within a Zone II.
- Purchasing 100± acres around the Gold Street Well.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any on going remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead Protection Plan.

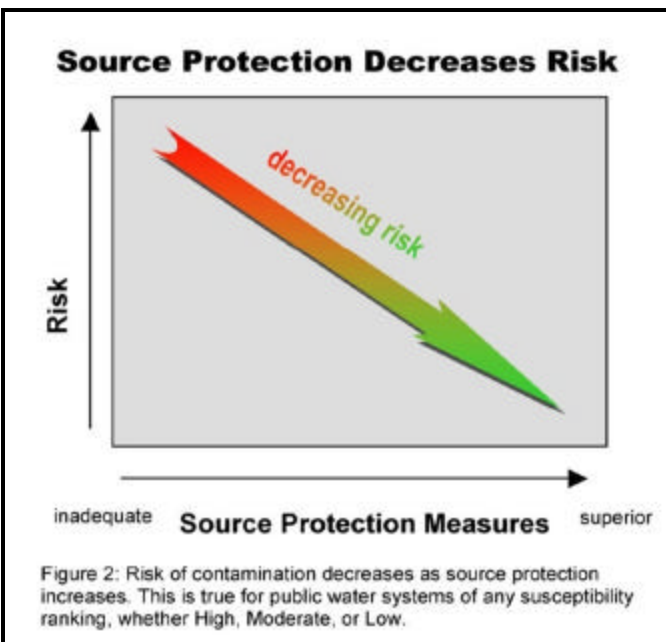
Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.



Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II #/ Source ID#	Potential Source of Contamination
Agricultural				
Manure Storage or Spreading	1	H	118, 340	Improper handling of manure (microbial contaminants)
Nurseries	1	M	340	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Commercial				
Railroad Tracks And Yards	1	H	340	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Residential				
Fuel Oil Storage (at residences)	numerous	M	118, 340	Spills, leaks, or improper handling of fuel oil
Lawn Care/ Gardening	numerous	M	118, 340	Over-application or improper storage and disposal of pesticides
Septic Systems/ Cesspools	numerous	M	118, 340	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous				
Aboveground Storage Tanks	1	M	340	Spills, leaks, or improper handling of materials stored in tanks
Composting Facilities	1	L	118	Storage and improper handling of organic material, animal waste, and runoff
Stormwater Drains/ Retention Basins	numerous	L	118, 340	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way	1	L	340	Construction and corridor maintenance, over-application or improper handling of herbicides

Activities	Quantity	Threat*	Zone II #	Potential Source of Contamination
Miscellaneous				
Transportation Corridors	2	M	118, 340	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Water Supply Protection Area % that is Sewered = 0%				
Notes:				
1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.				
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.				
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.				
? THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and				

Section 4: Appendices

- A. Protection Recommendations
- B. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988, or at http://www.neruralwater.org
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas. Pay special attention to fenced areas, lighting, and signs of forced entry into well houses and pump stations.
Are water supply-related activities the only activities within the Zone I?	YES	Continue monitoring for non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town's bylaw meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	NO	Request that municipal officials in Wrentham develop land use restrictions that meet 310 CMR 22.21(2).
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Continue with Norfolk's inspections. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	SOME	Currently, outreach is done through bill stuffers and the annual Consumer Confidence Report. Increase residential outreach through school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the Zone II.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Norfolk M.C.I.

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Norfolk M.C.I.
<i>PWS Address</i>	2 Clark Street
<i>City/Town</i>	Norfolk, Massachusetts 02054
<i>PWS ID Number</i>	3208001
<i>Local Contact</i>	Normand Charbonneau
<i>Phone Number</i>	(508) 668-0800

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Attachments

Section 1: Description of the Water System

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone II #: 550

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Dug Well #1	3208001-01G
New Well #4	3208001-03G
Tubular Wells #2	3208001-04G

Norfolk M.C.I. maintains and operate three public water supply sources. Norfolk's sources are located within the Charles River basin. Dug Well #1 and New Well #4 each have a Zone I radius of 400 feet; tubular wells, such as the Tubular Wells #2, have a Zone I radius of 250 feet. The Dug Well #1 (01G), New Well #4 (04G), and Tubular Wells #2 (04G) wellhead protection area is located within the town's of Norfolk and Wrentham. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

Section 2: Land Uses in the Protection Areas

The Zone II for Norfolk M.C.I. wells is a mixture primarily of forest and wetlands with a small portion consisting of residential, commercial, and mining land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Residential Land Uses
2. Transportation Corridor
3. Oil or Hazardous Material Contamination Sites
4. Protection Planning

The overall ranking of susceptibility to contamination for Norfolk M.C.I. is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Residential Land Uses – Approximately 11% of the Zone II consists of residential areas, which is served entirely by private septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

Work with the Town of Norfolk to:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

2. Transportation Corridors - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

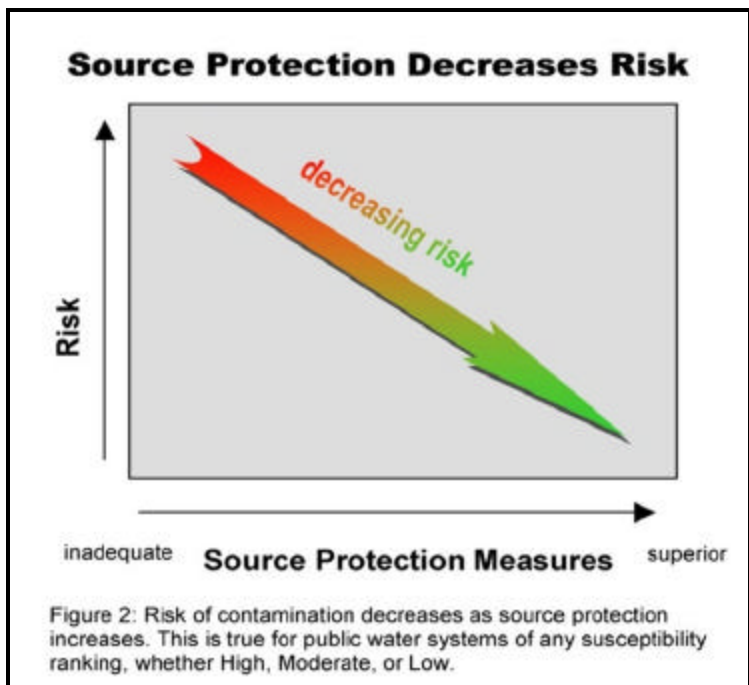
Catch basins transport stormwater from roadways and adjacent properties to the ground.

**When you wash your car in the driveway,
Remember
you're not just washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb, then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108



As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include substances from automotive leaks, maintenance, washing, or accidents.

Transportation Corridor Recommendations:

Work with the Town of Norfolk to:

- ✓ Regularly inspect the Zone II for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

4. Oil or Hazardous Material Contamination Sites – The Zone II contains three DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0000977, 3-0001694, and 3-0015923. See the attached map and Appendix 1 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

5. Protection Planning - Implementing protection measures and best management practices (BMPs) will reduce Norfolk M.C.I.'s wells susceptibility to contamination. Norfolk M.C.I. should review and adopt the key recommendations above and the following:

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff. Post labels as appropriate on raw materials and hazardous waste.
- ✓ Post drinking water protection area signs at key visibility locations.

(Continued on page 6)

**When you fertilize the lawn,
Remember
you're not *just* fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108

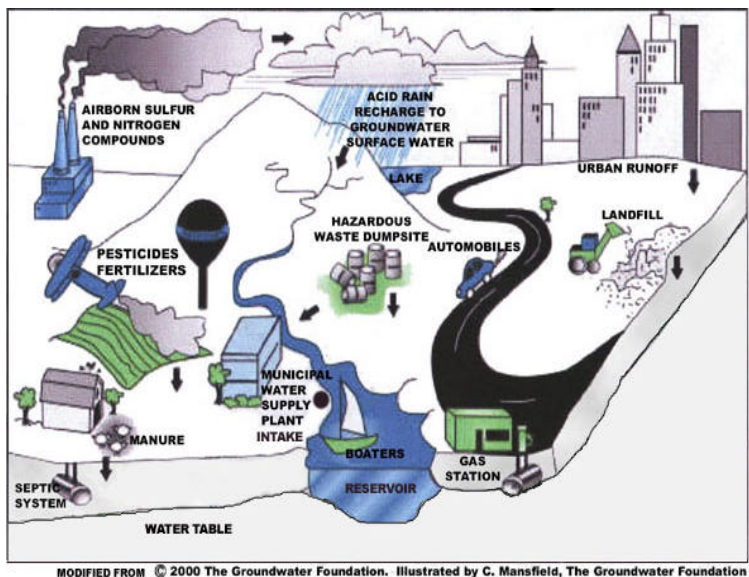


Figure 1: Sample watershed with examples of potential sources of contami-

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Potential Source of Contamination
Agricultural			
Manure Storage or Spreading	1	H	Improper handling of manure (microbial contaminants)
Commercial			
Body Shops	1	H	Improper management of vehicle paints, solvents, and primer products
Golf Courses	1	M	Over-application or improper handling of fertilizers or pesticides
Bus and Truck Terminals	2	H	Spills, leaks, or improper handling of fuels and maintenance
Paint Shops	1	H	Spills, leaks, or improper handling or storage of paints, solvents,
Sand And Gravel Mining/Washing	1	M	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial			
Petroleum Storage Facilities / Fossil Fuel Power Plants	1	H	Spills, leaks, or improper handling, or storage of petroleum products and equipment maintenance chemicals
Residential			
Fuel Oil Storage (at residences)	100±	M	Spills, leaks, or improper handling of fuel oil
Lawn Care / Gardening	100+	M	Over-application or improper storage and disposal of pesticides
Septic Systems/ Cesspools	100+	M	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous			
Aboveground Storage Tanks	1	M	Spills, leaks, or improper handling of materials stored in tanks
Landfills and Dumps	1	H	Seepage of leachate

Activities	Quantity	Threat	Potential Source of Contamination
Oil or Hazardous Material Sites	3	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified
Prisons	1	M	Spills, leaks, or improper handling or storage of solvents, microbial waste, and other chemicals
Stormwater Drains/ Retention Basins	Numerous/1	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	1	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	6	H	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste	3	L	Spills, leaks, or improper handling or storage of hazardous materials and waste

Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

- ✓ Work with your community to ensure that stormwater runoff is directed away from the well and is treated according to DEP guidance.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, refer to <http://www.state.ma.us/dep/bwp/dhm/files/sqgsum.pdf> for the Requirements for Small Quantity Generators.
- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. Instead, in areas using hazardous materials, discharge drains to a tight tank or sanitary sewer.
- ✓ Remove hazardous materials from rooms with floor drains that drain to the ground or septic systems.
- ✓ Floor drains in areas where hazardous materials or wastes might reach them need to drain to a tight tank, be sealed, or be connected to a sanitary sewer.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

- ✓ Concrete pads should slope away from well and well casing should extend above ground.
- ✓ For transformers that may contain PCBs, urge the immediate replacement of PCBs with a non-toxic transformer oil. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

Planning:

- ✓ Coordinate efforts with local officials to include Norfolk M.C.I.'s source protection areas in local wellhead protection controls. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Other land uses and activities within the Zone II are listed in Table 2. Refer to Table 2 for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Section 4: Attachments

- A. Regulated Facilities within the Water Supply Protection Area
- B. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- C. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's NERO at (617) 654-6535 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN NORFOLK M.C.I. WATER SUPPLY PROTECTION AREA

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
310344	HANDICAP MOBILITY INC	81 POND ST	NORFOLK	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
262862	JOEL CONSTRUCTION	176 DEDHAM ST	NORFOLK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
311580	KIESSLING TRANSIT INC	194 DEDHAM ST	NORFOLK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
374339	MA DEPARTMENT OF CORRECTION	2 CLARK ST	NORFOLK	PLANT	AIR QUALITY PERMIT
374339	MCI NORFOLK	2 CLARK ST	NORFOLK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132584	MCI NORFOLK	2 CLARK ST	NORFOLK	FULDSP	FUEL DISPENSER
36454	ROCKYS AUTO BODY	79 POND ST	NORFOLK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

UNDERGROUND STORAGE TANKS WITHIN NORFOLK M.C.I. WATER SUPPLY PROTECTION AREA

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
MCI-NORFOLK CDC WAREHOUSE	2 CLARK ST	NORFOLK	TRUCK/TRANSPORT	2000	FUEL OIL
MCI-NORFOLK CDC WAREHOUSE	2 CLARK ST	NORFOLK	TRUCK/TRANSPORT	4000	GASOLINE
MCI-NORFOLK POWER PLANT	2 CLARK ST	NORFOLK	STATE	25000	FUEL OIL
MCI-NORFOLK POWER PLANT	2 CLARK ST	NORFOLK	STATE	25000	FUEL OIL
MCI-NORFOLK POWER PLANT	2 CLARK ST	NORFOLK	STATE	500	DIESEL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Norfolk M.C.I. Water Supply Protection Area

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0000977	34 Dedham St	Norfolk	Hazardous Material
3-0001694	111 Dedham St	Norfolk	Hazardous Material
3-0015923	2 Clark St	Norfolk	Oil And Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
North Andover Water Division

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

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- assess the susceptibility of drinking water sources to contamination from these land uses; and
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Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	North Andover Water Division
<i>PWS Address</i>	420 Great Pond Road
<i>City/Town</i>	North Andover, MA 01845
<i>PWS ID Number</i>	3210000
<i>Local Contact</i>	Linda Hmurciak
<i>Phone Number</i>	(978) 688-9574

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

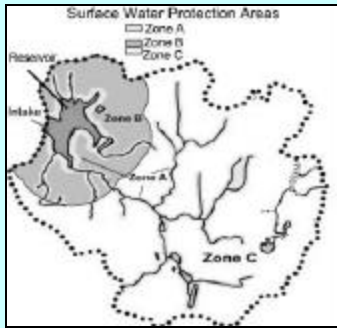
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Section 1: Description of the Water System

Surface Water Sources

Source Name	Source ID #	Susceptibility
Lake Cochichewick	3210000-02S	High

The reservoir for the North Andover Water Division is located entirely in North Andover, with a small section of the associated water supply protection area extending into the town of Boxford.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone C for North Andover is primarily a mixture of forest, residential, cropland, and recreation, with a small portion consisting of commercial and industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone A
2. Golf Course, Plant Nurseries, and Agricultural Activities
3. Transportation Corridors
4. Residential Land Uses
5. Aquatic Wildlife
6. Oil or Hazardous Material Contamination Sites
7. Comprehensive Surface Water Protection Planning

The ranking of susceptibility to contamination for Lake Cochichewick Zone C is high, based on the presence of at least one high threat land use within the water supply protection area, as seen in Table 2.

1. Activities in Zone A - Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and un-permitted and unauthorized activities. Wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. The following activities occur in the Zone A of the system's reservoirs:

Great Pond Road (Route 133) and other local roads run throughout the Zone A of Lake Cochichewick and its tributaries; there are numerous houses, of which twelve are on private septic systems; shoreline and boating access, and parking for recreational purposes; golf course and agriculture; underground storage tanks (nine within the Zone A)

Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Prohibit access to the reservoir as much as possible. In light of security issues, and especially since boating is allowed on Lake Cochichewick, cordon off the intake (i.e. installing floating booms from shore to shore) so as to prevent boats from gaining access to the intake structure area.

Glossary Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.
- ✓ Identify stormwater drains and the drainage system along transportation corridors. Work to better manage stormwater by pre-treating contaminated stormwater and/or redirecting stormwater outside of the Zone A.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

2. Golf Course, Plant Nurseries and Agricultural Activities – Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If not contained or applied properly, animal waste from barnyards, manure pits and field application is a potential source of contamination to ground and surface water. If managed improperly,

Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Course, Plant Nurseries and Agricultural Activities Recommendations:

- ✓ Work with farmers in your protection area to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ Encourage farmers, and nursery and golf course managers to incorporate an **Integrated Pest Management (IPM)** approach into their pest management program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other agricultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote **Best Management Practices (BMPs)** for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Work with farmers, nurseries, and golf courses to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.

3. Transportation Corridors - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash in to catch basins.

Transportation Corridor Recommendations:

- ✓ Identify stormwater drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge stormwater outside of the Zone C.

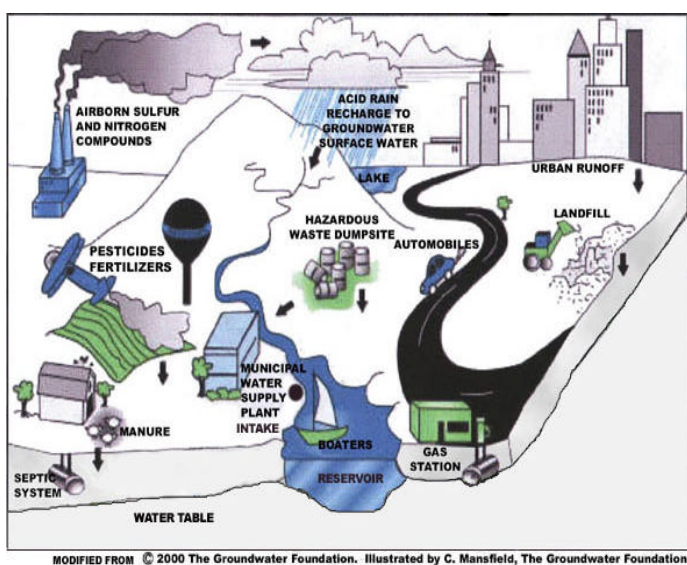


Figure 1: Sample watershed with examples of potential sources of contamination

- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Work with City and State emergency response teams to ensure that any spills within the Zone A and Zone C can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with city officials to investigate mapping options such as those in the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

4. Residential Land Uses – If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

5. Aquatic Wildlife - Beaver and muskrat may introduce the pathogens Giardia and Cryptosporidium into water through fecal matter. Because of their constant contact with the water, these aquatic mammals represent a potential threat to

drinking water reservoirs. Birds, particularly gulls, are attracted to large open bodies of water. Birds may increase coliform levels through the release of fecal matter into the water and may carry other bacteria and viruses. Appendix A contains a DEP fact sheet titled What You Need To Know About Microbial Contamination.

Aquatic Wildlife Recommendations:

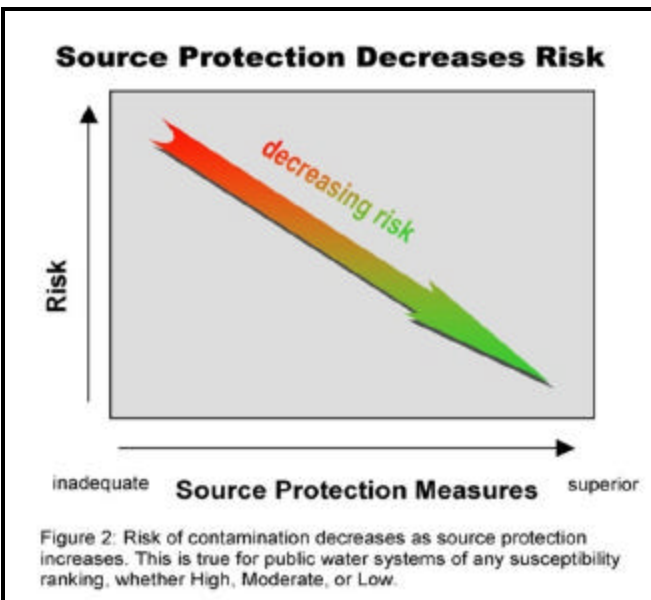
- ✓ Monitor wildlife populations in and around reservoirs.
- ✓ Where necessary, discourage and control aquatic wildlife. See <http://mass.gov/dep/brp/dws/protect.htm> for guidance and permits.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



6. Presence of Oil or Hazardous Material Contamination Sites – The Zone C contains a DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 3-0003403. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination site.

7. Protection Planning – The Town of North Andover has water supply protection controls that are implemented through a Watershed Protection Overlay District Bylaw. Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Potential Contaminant Sources*
Agricultural			
Dairy Farms	1	M	Manure (microbial contaminants): improper handling
Fertilizer Storage or Use	1	M	Fertilizers: leaks, spills, improper handling, or over-application
Livestock Operations	1	M	Manure (microbial contaminants): improper handling
Manure Storage or Spreading	1	H	Manure (microbial contaminants): improper handling
Nurseries	1	M	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling, or over-application
Pesticide Storage or Use	1	H	Pesticides: leaks, spills, improper handling, or over-application
Commercial			
Airports	1	H	Fuels, de-icers, salt, and other hazardous chemicals: spills, leaks, or improper handling
Service Stations/ Auto Repair Shops	1	H	Automotive fluids and solvents: spills, leaks, or improper handling
Cemeteries	1	M	Over-application of pesticides: leaks, spills, improper handling; historic embalming fluids
Dry Cleaners	1	H	Solvents and wastes: spills, leaks, or improper handling
Golf Courses	1	M	Fertilizers or pesticides: over-application or improper handling
Residential			
Fuel Oil Storage (at residences)	numerous	M	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	numerous	M	Pesticides: over-application or improper storage and disposal
Septic Systems/ Cesspools	157	M	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous			
Aboveground Storage Tanks	10	M	Materials stored in tanks: spills, leaks, or improper handling
Aquatic Wildlife	numerous	L	Microbial contaminants
Clandestine Dumping	2	H	Debris containing hazardous materials or wastes
Fishing/Boating	numerous	L	Fuel and other chemical spills, microbial contaminants
NPDES Locations	1	L	Hazardous material and wastes: improper disposal
Oil or Hazardous Material Sites	1	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.

Land Use	Quantity	Threat	Potential Contaminant Sources*
Miscellaneous			
Schools, Colleges, and Universities	2	M	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Small Quantity Hazardous Waste Generators	1	M	Hazardous materials and waste: spills, leaks, or improper handling or storage
Stormwater Drains/ Retention Basins	numerous/9	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way Type: electric	1	L	Corridor maintenance pesticides: over-application or improper handling; construction
Transportation Corridors	4	M	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling
Underground Storage Tanks	43	H	Stored materials: spills, leaks, or improper handling
Utility Substation Transformers	1	L	Chemicals and other materials including PCBs: spills, leaks, or improper handling
Very Small Quantity Hazardous Waste Generators	1	L	Hazardous materials and waste: spills, leaks, or improper handling or storage
Wastewater Treatment Plant/Collection Facility/ Lagoons	numerous	M	Treatment chemicals or equipment maintenance materials: improper handling or storage; wastewater: improper management
Water Supply Protection Area % that is Sewered = 75%			
Notes:			
1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.			
2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.			
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.			
THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.			

A Water Resource Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supplies.

Protection Planning Recommendations:

- ✓ Develop a Watershed Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Surface Water Supply Protection Plan”.
- ✓ Coordinate efforts with local officials to compare local surface water protection controls with current MA Surface Water Supply Protection Regulations 310 CMR 22.20B and 310 CMR 22.20C. If local controls do not meet the current regulations, amend existing controls to meet 310 CMR 22.20B and 310 CMR 22.20C. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Other land uses and activities within the Zone C that are potential sources of contamination are included in Table 2. Refer to Appendix A for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water source.

Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system's Zone C contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Area through:

- Purchasing an additional 27.33 acres of water supply protection land, and other parcels that are significant to watershed protection..
- Partnering with Trustees of Reservations by establishing pet waste stations with educational material and refuse bags.
- Adopting local land use controls for surface water protection. Local controls include: a Watershed Protection Overlay District Ordinance; hazardous materials controls; inspections of industrial facilities by the fire department; and, conducting regular inspections of the Zone A and watershed.
- Developing an education program that will specifically target lake-front abutters.
- Partnering with the Merrimack Valley Planning Commission (MVPC) to utilize a grant for the purpose of developing a series of data layers that identify source protection issues. MVPC will provide North Andover with digital information that represents, among other things, potential pollution threats, and land development.
- Partnering with the Merrimack Valley Planning Commission (MVPC) to utilize a grant for the purpose of developing an emergency response plan.
- Actively enforcing Conservation Commission bylaws, and source protection bylaws.
- Providing outreach and educational materials emphasizing the benefits of xeriscape landscape practices.

Source Protection Recommendations:

To better protect the source for the future:

- ✓ When feasible, re move any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone A and Zone C, and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A. DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone A?	NO (Approximately 10% of the Zone A is owned or controlled)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials. To the extent possible, remove prohibited activities in Zone A to comply with DEP’s Zone A requirements.
Is the Zone A posted with “Public Drinking Water Supply” Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	SOME	A formal inspection is not conducted by water supply personnel; however, different town boards do inspections throughout the watershed. Coordinate efforts to make inspections of drinking water protection areas more formal.
Are water supply-related activities the only activities within the Zone A?	NO	Monitor prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C?	POSSIBLY	Work with the Planning Board and the City Council to review the existing Watershed Protection Overlay District Ordinance to determine if it meets land use controls required by 310 CMR 22.20B & C. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Work with the Town of Boxford to include North Andover’s watershed in its protection controls.
Planning		
Does the PWS have a local surface water protection plan?	YES	Review surface water supply protection plan to determine if it adequately addresses changes in the watershed. Follow “Developing a Local Surface Water Supply Protection Plan” available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal “Emergency Response Plan” to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	NO	Establish a committee with representatives from citizens’ groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	Fire Department	For more guidance see “Hazardous Materials Management: A Community’s Guide” at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	YES	PWS offers tours, is active on the Lake Committee, has a website, provides fact sheets, and does outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone C.

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the water supply protection area. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN NORTH ANDOVER WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
135809	NORTH ANDOVER TEXACO INC	980 OSGOOD ST	NORTH ANDOVER	FUEL DISPENSER	FUEL DISPENSER
135809	NORTH ANDOVER TEXACO INC	980 OSGOOD STREET	NORTH ANDOVER	HANDLER	VERY SMALL QUANTITY GENERATOR
135809	NORTH ANDOVER TEXACO INC	980 OSGOOD STREET	NORTH ANDOVER	DISCHARGE	INDUSTRIAL SEWER WASTE WATER
135809	NORTH ANDOVER TEXACO INC	980 OSGOOD STREET	NORTH ANDOVER	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

UNDERGROUND STORAGE TANKS WITHIN NORTH ANDOVER WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
NORTH ANDOVER TEXACO	980 OSGOOD STREET	NORTH ANDOVER	GAS STATION	8000	GASOLINE
NORTH ANDOVER TEXACO	980 OSGOOD STREET	NORTH ANDOVER	GAS STATION	8000	GASOLINE
NORTH ANDOVER TEXACO	980 OSGOOD STREET	NORTH ANDOVER	GAS STATION	8000	GASOLINE

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
North Reading Water Department

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	North Reading Water Department
<i>PWS Address</i>	235 North Street
<i>City/Town</i>	North Reading, Massachusetts 01864
<i>PWS ID Number</i>	3213000
<i>Local Contact</i>	Mark Clark
<i>Phone Number</i>	978-664-6060

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

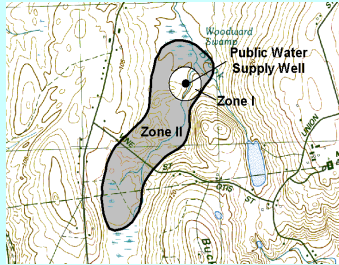
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 351

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Railroad Bed Wells	3213000-01G
Lakeside Blvd. Well #2	3213000-02G
Lakeside Blvd. Well #3	3213000-03G
Central Street Wellfield	3213000-04G
Route 125 Well	3213000-05G
Lakeside Blvd. Well #4	3213000-07G

IWPA

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Stickney Well	3213000-06G

The North Reading Water Department (North Reading) maintains and operates seven public water supply sources. North Reading's sources are located within the Ipswich River basin. The Railroad Bed Wells (01G), Lakeside Blvd. Well #2 (02G), Lakeside Blvd. Well #3 (03G), Lakeside Blvd. Well #4 (07G), Central Street Wellfield (04G) and Route 125 Well (05G) wellhead protection area is located within the towns of Andover, North Reading and Wilmington. The Stickney Well (06G), which is an inactive source, has an Interim Wellhead Protection Area (IWPA) that is located in North Reading and Wilmington. Each well has a Zone I radius of 400 feet; tubular wells, such as the Central Street Wellfield, have a Zone I radius of 250 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barrier (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the Zone II and IWPA.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The IWPA and Zone II for North Reading are primarily a mixture of forest and residential land uses, with a portions consisting of mining, commercial, and industrial activities (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous Materials Storage and Use
3. Residential Land Uses
4. Transportation Corridors
5. Oil or Hazardous Material Contamination Sites
6. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the all of North Reading’s wells is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone Is – The Zone I for the Railroad Bed Wells (01G), Lakeside Blvd. Well #2 (02G), Lakeside Blvd. Well #3 (03G), Lakeside Blvd. Well #4 (07G), Route 125 Well (05G), and Stickney Well (06G) is a 400 foot radius around each wellhead. The Zone I for the Central Street Wellfield (04G) is a 250 foot radius around each well in the wellfield. Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply



activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The combined Zone I for North Reading’s Lakeside Blvd. Wells (02G, 03G, 07G) contains homes with on-site septic systems, and a local road; the Route 125 Well (05G) is intersected by Route 125, which is a major transportation corridor.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP’s Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Hazardous Materials Storage and Use– A small percent of the land area within the Zone II and IWPA contains commercial, industrial, and mining land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

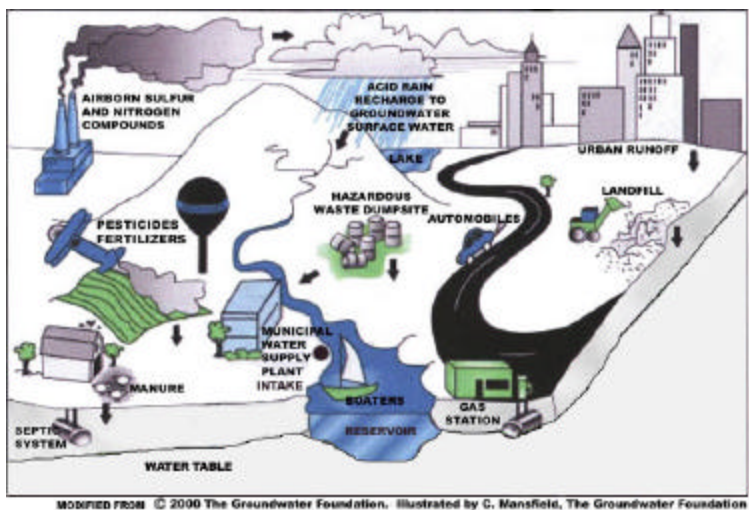


Figure 1: Sample watershed with examples of potential sources of contami-

Hazardous Materials Storage and Use Recommendations:

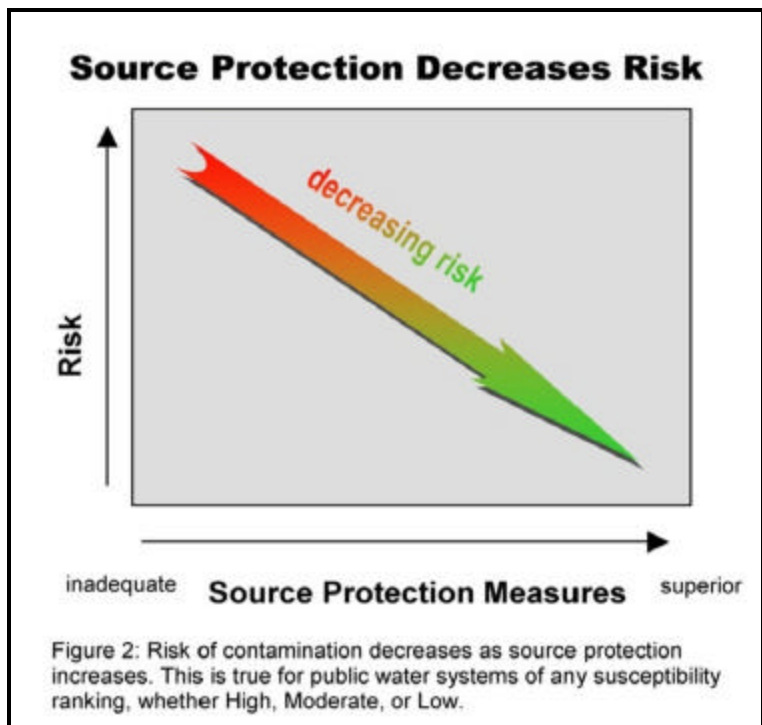
- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP’s for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

3. Residential Land Uses – Residential areas are common throughout the IWPA and Zone IIs. Some of the areas have public sewers, and some use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:



- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

(Continued on page 6)



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (IWPA and Zones II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II #/ IWPA	Potential Contaminant Sources*
Commercial				
Service Stations/ Auto Repair Shops	1	H	IWPA	Automotive fluids and solvents: spills, leaks, or improper handling
Bus and Truck Terminals	3	H	IWPA	Spills, leaks, or improper handling of fuels and maintenance chemicals
Golf Courses	1	M	351	Over-application or improper handling of fertilizers or pesticides
Medical Facilities	1	M	351	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes
Sand and Gravel Mining/ Washing	1	M	351	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial				
Asphalt, Coal Tar, and Concrete Plants	1	M	351	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Industry/Industrial Parks	1	H	351	Spills, leaks, or improper handling or storage of industrial chemicals and metals
Machine/Metalworking Shops	1	H	351	Spills, leaks, or improper handling of solvents; metal tailings
Pharmaceutical Manufacturers	1	H	351	Spills, leaks, or improper handling and or storage of chemicals
Residential				
Fuel Oil Storage (at residences)	100+	M	IWPA, 351	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	100+	M	IWPA, 351	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	100+	M	IWPA, 351	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous				
Aboveground Storage Tanks	2	M	IWPA, 351	Spills, leaks, or improper handling of materials stored in tanks
Large Quantity Hazardous Waste Generators	2	H	IWPA	Spills, leaks, or improper handling or storage of hazardous materials and waste
Oil or Hazardous Material Sites	10	--	IWPA, 351	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.

Land Uses	Quantity	Threat	IWPA/ Zone II #	Potential Contaminant Sources*
Miscellaneous				
Road and Maintenance Depots	1	M	351	Spills, leaks, or improper handling or storage of deicing materials, automotive fluids, fuel storage, and other chemicals
Small Quantity Hazardous Waste Generators	6	M	IWPA, 351	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	100+	L	IWPA, 351	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way	1	L	351	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	3	M	351	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	10	H	IWPA, 351	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	6	L	IWPA, 351	Spills, leaks, or improper handling or storage of hazardous materials and waste
Water Treatment Sludge Lagoons	4	M	351	Improper management of sludge and wastewater
Table 2 Notes:				
<ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. 				
<p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

(Continued from page 4)

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

4. Transportation Corridors - Transportation corridors and other paved and unpaved local roads cross through the water supply protection areas. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Transportation Corridor Recommendations:

- ✓ Wherever possible, ensure that drains discharge stormwater outside of the Zone I.
- ✓ Identify stormwater drainage systems along transportation corridors. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained. Review storm drainage maps with emergency response teams.
- ✓ Work with the Town and State to best manage stormwater in the Zone II. Best management practices include street sweeping, vegetative swales, and regular catch basin inspection, cleaning and maintenance.

5. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0000518, 3-0001813, 3-0002363, 3-0003766, 3-0004170, and 3-0019809. Refer to the attached map and Appendix C for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

6. Protection Planning – Currently, the Town of North Reading has a groundwater protection bylaw that meets DEP's Groundwater Protection regulations 310 CMR 22.21. Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Coordinate efforts with the Town of Andover to include North Reading's source protection areas in local wellhead protection controls. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the IWPA and Zone II are included in Table 2. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, North Reading's IWPA and Zone II contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Receiving a grant from DEP to develop a Wellhead Protection Plan
- Providing household hazardous waste collection facility

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES (Central St. Wellfield)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Railroad Bed Wells, Lakeside Blvd. Wells, Route 125 Well, Stickney Well)	To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements. Investigate options for gaining ownership or control of the Zone A.
Are the Zone Is posted with "Public Drinking Water Supply" Signs?	NO	Signs were removed for security purposes. "No Trespassing" signs can be posted as a substitute for "Public Drinking Water Supply" signs.
Are the Zone Is regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES (Central St. Wellfield, Railroad Bed Wells, Stickney Well)	Monitor for any non-water supply activities in Zone I, and investigate options for removing these activities.
	NO (Lakeside Blvd. Wells, Route 125 Well)	Monitor prohibited activities in Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town's bylaw meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	Partial	Work with the Town of Andover to encourage them to adopt local controls that include North Reading's wellhead protection area.
Planning		
Does the PWS have a wellhead protection plan?	In Progress	North Reading received a grant from DEP to develop and implement a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Will be addressed as part of the wellhead protection plan. Encourage committee to include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	Fire Department	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	Some	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial uses within the IWPA and watershed.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN NORTH READING WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
251722	BARD MEDISYSTEMS	87 CONCORD ST	NORTH READING	DISCH	BELOW INDUSTRIAL WASTE WATER REG LEVELS
251722	BARD MEDISYSTEMS	87 CONCORD ST	NORTH READING	PLANT	AIR QUALITY PERMIT
251722	BARD MEDISYSYSTEMS	87 CONCORD ST	NORTH READING	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
29369	CENTRE TRUCKING SERVICES INC	81 CONCORD ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
121254	LILY TRUCK LEASING	84 CONCORD ST	NORTH READING	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
132775	NEW ENGLAND MOTOR FREIGHT INC	90 CONCORD ST	NORTH READING	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131607	AGFA DIVISION, BAYER CORPORATION	200 BALLARDVALE ST	WILMINGTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
131268	AMETEK AEROSPACE INC	50 FORDHAM RD	WILMINGTON	PLANT	AIR QUALITY PERMIT
131268	AMETEK AEROSPACE PRODUCTS INC	50 FORDHAM RD	WILMINGTON	GROUND	GROUNDWATER DISCHARGE
131268	AMETEK AEROSPACE PRODUCTS, INC.	50 FORDHAM RD	WILMINGTON	TURRPT	BELOW TOXICS USE REDUCTION REG LEVELS
357200	AZORES CORP	260 FORDHAM RD	WILMINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
26009	DUPONT E I DENEMOURS & CO INC	1 CORNELL PL	WILMINGTON	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
376134	DUPONT PHOTONICS TECHNOLOGIES	100 FORDHAM RD	WILMINGTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
900	DYNAMICS RESEARCH CORP	60 CONCORD ST	WILMINGTON	PLANT	RES APPLICATION APPROVED
323173	FISHMAN TRANSDUCERS	340D FORDHAM RD	WILMINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
134417	FRIDAY ENGINEERING INC	11 UPTON CT	WILMINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
379794	LOCKHEED MARTIN CORP	50 FORDHAM RD	WILMINGTON	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
132847	REGIONAL HEALTH CENTER	500 SALEM ST	WILMINGTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
134419	SHEA CONCRETE PRODUCTS INC	773 SALEM ST	WILMINGTON	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
308853	WILMINGTON DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
308853	WILMINGTON DPW	135 ANDOVER ST	WILMINGTON	FULDSP	FUEL DISPENSER
371195	ZELLER & GMELIN	10 UPTON DR	WILMINGTON	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE

UNDERGROUND STORAGE TANKS WITHIN NORTH READING WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
LILY TRUCK LEASING CORP	84 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL
LILY TRUCK LEASING CORP	84 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	8000	WASTE OIL
ROADWAY EXPRESS INC	95 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	8000	DIESEL
ROADWAY EXPRESS INC	95 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	8000	DIESEL
DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	MUNICIPAL	10000	GASOLINE
DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	MUNICIPAL	10000	DIESEL
DYNAMICS RESEARCH CORP	50 CONCORD ST	WILMINGTON	OTHER	4000	OTHER

For More Information On Underground Storage Tanks, Visit The Massachusetts Department Of Fire Services Web Site:
[Http://www.State.Ma.Us/Dfs/Ust/Usthome.Htm](http://www.state.ma.us/dfs/ust/usthome.htm)

Note: This Appendix Includes Only Those Facilities Within The Water Supply Protection Area(s) That Meet State Reporting Requirements And Report To The Appropriate Agencies. Additional Facilities Located Within The Water Supply Protection Area(s) Should Be Considered In Local Drinking Water Source Protection Planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within North Reading Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0001813	Rte 125 N	Andover	Oil
3-0002363	95 Concord St	North Reading	Oil
3-0000518	50 Fordham Rd	Wilmington	Oil
3-0003766	100 Ainsworth Rd	Wilmington	Oil
3-0004170	319a Andover St	Wilmington	Oil
3-0019809	135 Andover St	Wilmington	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Peabody Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Peabody Water Department
<i>PWS Address</i>	50 Farm Ave.
<i>City/Town</i>	Peabody, MA 01960-5493
<i>PWS ID Number</i>	3229000
<i>Local Contact</i>	Peter Smyrnios
<i>Phone Number</i>	(978) 536-5069

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Emergency Planning Recommendations for Class B River Intakes
4. Source Water Protection
5. Appendices

Section 1: Description of the Water System

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

The large watersheds and historically urbanized land uses associated with major rivers makes source protection a challenge at the Class B sources.

A Class B water body source such as the Ipswich River does not have Zone A, B and C protection areas, as do Class A water body sources. For the purposes of the SWAP assessments, a 400 foot setback area along the river and all feeder streams has been delineated for Class B water body sources that is referred to as an "Emergency Planning Zone". Land uses and activities within this zone are of particular concern for source protection and emergency planning because of their proximity to the water supply.

River drinking water sources are particularly susceptible to spills and accidental releases from public and private discharges; accidents related to vehicles,

Groundwater Sources

Zone II #: 250

Susceptibility: High

Well Name	Source ID#
Pine Street Well	3229000-01G
Johnson Street Well	3229000-02G

Surface Water Sources

Source Name	Source ID #	Susceptibility
Spring Pond Reservoir	3229000-01S	High
Suntaug Reservoir	3229000-02S	High
Ipswich River	3229000-03S	High
Winona Pond Reservoir	3229000-04S	Moderate

The Peabody Water Department (Peabody) maintains and operates six public water supply sources. Peabody's water supplies are located within the North Coastal and Ipswich River basins. The reservoirs for Peabody are located within three separate water supply protection areas, with Spring Pond Reservoir (01S) being in Peabody, Salem, and a small portion in Lynn; Suntaug Reservoir (02S) being in Peabody and Lynnfield; and, Winona Pond Reservoir (04S) being entirely in Peabody. The intake for the Ipswich River (04S) is in Peabody. The Pine Street Well (01G) and Johnson Street Well (02G) are both in Peabody.

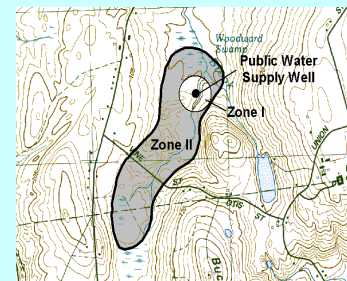
For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Class B Drinking Water Sources

There are twelve Class B drinking water sources on rivers in Massachusetts, eleven in the urbanized northeast and one in the western part of the State. Three of these sources are located on the Ipswich River.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



railroads, airports, boats; utility easements; fixed site releases at industrial and public facilities; inappropriate use of pesticides and fertilizers; improper disposal of hazardous household waste; and illegal dumping of a variety of substances.

This assessment has been conducted on the watershed area upstream of the Peabody intake. In addition, DEP has delineated a 400-foot emergency planning zone (shown on the GIS map that accompanies this report) adjacent to the river and its tributaries for the purpose of this assessment.

Section 2: Land Uses in the Protection Areas

The Zone II and watersheds for the Peabody reservoirs and Ipswich River intake are primarily a mixture of forest and residential, with a small portion consisting of agricultural, commercial, and industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Activities in Zone A/Emergency Planning Zone
3. Chemical and Hazardous Materials Manufacture, Storage and Use
4. Residential Land Uses
5. Transportation Corridors
6. Road and Maintenance Depots
7. Oil or Hazardous Material Contamination Sites
8. Comprehensive Surface Water Protection Planning

The rankings of susceptibility to contamination for the Spring Pond Reservoir, Suntaug Reservoir, Ipswich River watersheds and the Pine Street and Johnson Street Wells' Zone II are high based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2. The ranking of susceptibility to contamination for the Winona Pond Reservoir is moderate based on the presence of at least one moderate threat land use within the water supply protection area, as seen in Table 2.

1. Activities in Zone I – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for the Johnson Street Well (02G) contains an inactive railroad line; the Pine Street Well (01G) Zone I contains a portion of a parking lot, and a portion of the adjacent athletic fields.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

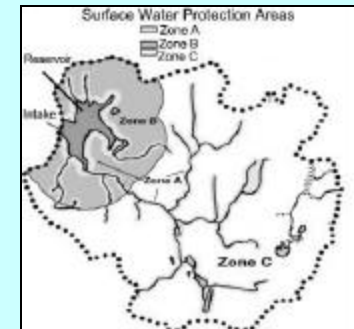
2. Activities in Zone A/Emergency Planning Zone - A Zone A for a reservoir includes all areas within 400 feet of the reservoir shore line and within 200 feet of either side of all streams and feeder ponds that flow into the reservoir. The

Class B River Intakes

Class B water sources do not have Zone A, B and C protection areas as the Class A sources do. For the purposes of this report, an "Emergency Planning Zone" has been delineated. The **Emergency Planning Zone** is the land area within 400 feet of both sides of the river including all tributary streams and surface water bodies.

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Emergency Planning Zone is a 400 foot setback on either side of the river and all tributaries to a Class B river intake. Land use activities within a Zone A or Emergency Planning Zone may have an impact on surface water sources. Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and, un-permitted and unauthorized activities. Also, wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.

Zone A Recommendations:

Work with communities within the combined watersheds to:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP’s Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A and Emergency Planning Zone should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.
- ✓ Identify stormwater drains and the drainage system along transportation corridors. Work to better manage stormwater by pre-treating contaminated stormwater and/or redirecting stormwater outside of the Zone A and Emergency Planning Zone.
- ✓ Continue your efforts to protect these areas and to monitor and review activities within the Zone A and Emergency Planning Zone.

3. Chemical and Hazardous Materials Manufacture, Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (UST)/Aboveground Storage Tanks (AST). Although many facilities within the watershed use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills,

leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.
- ✓ Continue monitoring water quality in the Ipswich River.

(Continued on page 8)

When you wash your car in the driveway, Remember you’re not just washing your car in the driveway.



All the soap, suds, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

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Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity Zone II & Zone C	Threat	Zone II & Zone C Source ID #	Quantity Ipswich River Watershed	Potential Contaminant Sources*
Agricultural					
Dairy Farms	--	M	--	1	Improper handling of manure (microbial contaminants)
Fertilizer Storage or Use	--	M	--	Few	Leaks, spills, improper handling, or over-application of fertilizers
Landscaping	--	M	--	1	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Manure Storage or Spreading	--	H	--	Few	Improper handling of manure (microbial contaminants)
Nurseries	--	M	--	Few	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Pesticide Storage or Use	--	H	--	Few	Leaks, spills, improper handling, or over-application of pesticides
Commercial					
Body Shops	1	H	01G, 02G	9	Improper management of vehicle paints, solvents, and primer products
Gas Stations	4	H	01G, 02G, 02S	28	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	2	H	01S	22	Spills, leaks, or improper handling of automotive fluids, and solvents
Bus and Truck Terminals	1	H	01G, 02G	6	Spills, leaks, or improper handling of fuels and maintenance chemicals
Cemeteries	5	M	01S, 02S, 04S, 01G, 02G	Several	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Dry Cleaners	--	H	--	6	Spills, leaks, or improper handling of solvents and wastes
Golf Courses	--	M	--	2	Over-application or improper handling of fertilizers or pesticides
Junk Yards and Salvage Yards	2	H	01G, 02G	--	Spills, leaks, or improper handling of automotive chemicals, wastes, and batteries
Medical Facilities	--	M	--	2	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes

Land Uses	Quantity Zone II & Zone C	Threat	Zone C Source ID #	Quantity Ipswich River Watershed	Potential Contaminant Sources*
Commercial					
Nursing Homes	1	L	01G, 02G	2	Microbial contaminants
Photo Processors	--	H	--	3	Spills, leaks, or improper handling or storage of photographic chemicals
Printer and Blueprint Shops	--	M	01S	8	Spills, leaks, or improper handling or storage of printing inks and chemicals
Repair Shops (Engine, Appliances, Etc.)	--	H	--	5	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Sand and Gravel Mining/Washing	--	M	--	3	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial					
Asphalt, Coal Tar, and Concrete Plants	--	M	--	2	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Hazardous Materials Storage	--	H	--	8	Spills, leaks, or improper handling or storage of hazardous materials
Machine/Metalworking Shops	--	H	--	4	Spills, leaks, or improper handling of solvents; metal tailings
RCRA TSDF Facilities	--	H	--	1	Spills, leaks, or improper handling or storage of hazardous wastes
Residential					
Fuel Oil Storage (at residences)	100+	M	01S, 02S, 04S, 01G, 02G	100+	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	100+	M	01S, 02S, 04S, 01G, 02G	100+	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	100+	M	01S, 02S, 04S, 01G, 02G	100+	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous					
Aboveground Storage Tanks	4	M	01S, 01G, 02G	11	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	100+	L	02S	100+	Microbial contaminants
Large Quantity Hazardous Waste Generators	--	H	--	10	Spills, leaks, or improper handling or storage of hazardous materials and waste
Landfills and Dumps	--	H	--	1	Seepage of leachate
NPDES Locations	2	L	01S, 04S	1	Improper disposal of hazardous material and wastes

Land Uses	Quantity Zone II & Zone C	Threat	Zone C Source ID #	Quantity Ipswich River Watershed	Potential Contaminant Sources*
Miscellaneous					
Oil or Hazardous Material Sites	4	--	01G, 02G	50	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	01G, 02G	6	Spills, leaks, or improper handling or storage of deicing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	--	M	--	4	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	1	M	02S	28	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains	100+	L	01S, 02S, 04S, 01G, 02G	100+	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Tire Dumps	1	M	--	--	Improper handling or management of tires
Transportation Corridors	1	M	02S, 01G, 02G	Several	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	7	H	02S, 01G, 02G	191	Spills, leaks, or improper handling of stored materials
Utility Substation Transformers	1	L	01G, 02G	--	Spills, leaks, or improper handling of chemicals and other materials including PCBs
Very Small Quantity Hazardous Waste Generators	7	L	01S, 02S, 04S, 01G, 02G	73	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/ Recycling Station	--	M	--	1	Improper management, seepage, and runoff of water contacting waste materials
Wastewater Treatment Plant/Collection Facility/Lagoon	--	M	--	1	Improper handling or storage of treatment chemicals or equipment maintenance materials; improper management of wastewater
Water Treatment Sludge Lagoon	2	M	01S, 04S	1	Improper management of sludge and wastewater
<p>Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>					

(Continued from page 4)

- ✓ Continue to plan and prepare for spills by communicating with municipalities and facilities in the Ipswich River watershed, and by conducting drills.

4. Residential Land Uses – Approximately 80% of the combined watersheds consist of residential areas, of which a large portion is served by private septic systems, with the remainder being served by municipal sewerage. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

5. Transportation Corridors - Several major transportation corridors and other paved and unpaved local roads cross through the watersheds. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins. The steep topography of the watershed results in application of de-icing materials to protect public health and safety by keeping the roads passable.

Transportation Corridor Recommendations:

Work with communities within the combined watersheds to:

- ✓ Identify stormwater drains and the drainage system along transportation corridors.

**When you fertilize the lawn,
Remember
you're not *just* fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

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- ✓ Work with the Towns and State to have catch basins inspected, maintained, and cleaned on a regular schedule.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Establish vegetated buffers along roads and parking areas to provide some filtration of contaminants.
- ✓ Encourage regular street sweeping. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.
- ✓ Conduct emergency drills to be ready for spills.
- ✓ Regularly inspect the watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.

6. Road and Maintenance Depots - Potential sources of contamination in state and municipal facilities can result from accidental dumping, spills, leaks, vehicle washing operations, or from wastewater treatment. Waste management and product storage pose the greatest threats with a wide variety of potentially harmful contaminants.

Road and Maintenance Depots Recommendations:

Work with communities within the combined watersheds to:

- ✓ Institute **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/neeat/muni/index.html>. Encourage road and maintenance depots to develop best management practices to insure proper salt storage, proper maintenance of facilities and good housekeeping practices.
- ✓ Adequately size salt pile structure to allow for the loading and unloading of salt within the structure. Review the Department of Environmental Protection's Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.

- ✓ Encourage proper storage of materials at these facilities. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.

7. Presence of Oil or Hazardous Material Contamination Sites - The Zone II and watersheds for Peabody and the Ipswich River contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 3-0004161, 3-0012406, 3-0001565, 3-0016711, 3-0019019, 3-0001813, 3-0000784, 3-0011228, 3-0001494, 3-0006026, 3-0019687, 3-0000692, 3-0002276, 3-0002363, 3-0002584, 3-0002804, 3-0003167, 3-0003925, 3-0004007, 3-0004466, 3-0004468, 3-0004481, 3-0004583, 3-0014465, 3-0017390, 3-0001587, 3-0013565, 3-0017659, 3-0000471, 3-0000518, 3-0000625, 3-0000776, 3-0000904, 3-0001268, 3-0001728, 3-0001916, 3-0001973, 3-0002549, 3-0002889, 3-0003548,

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with the watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow to the Zone II.
2. The groundwater in this area probably discharges to surface water feature such as a river rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

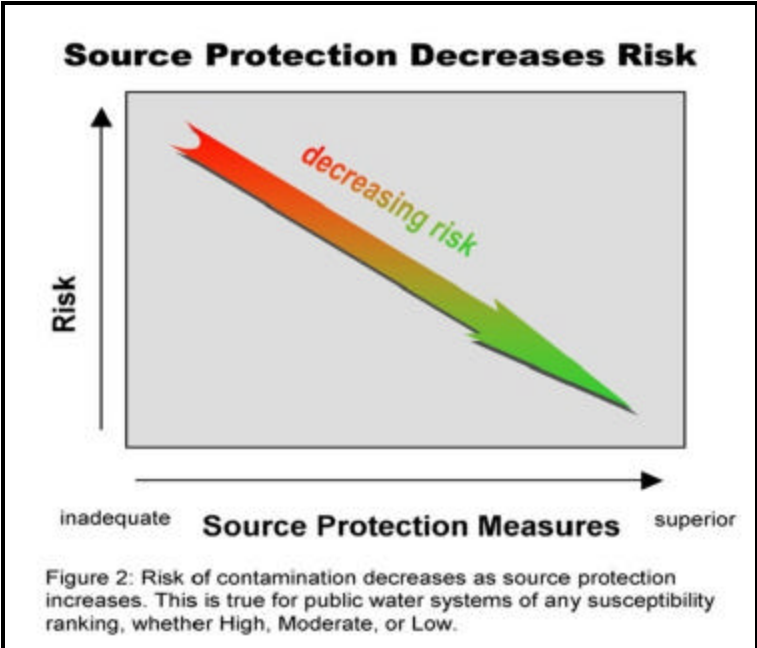


Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and Zone A?	YES (Johnson Street Well)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials. To the extent possible, remove prohibited activities in Zone A and Zone I to comply with DEP's Zone A and Zone I requirements.
	NO (Pine Street Well, Spring Pond Reservoir, Suntaug Reservoir, Winona Pond Reservoir)	
Are the Zone I's and Zone A's posted with "Public Drinking Water Supply" Signs?	YES	The Emergency Planning Zone for the Ipswich River Watershed is not posted. Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone I's and Zone A's regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I and Zone A?	NO	Monitor prohibited activities in Zone A and Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO - Surface YES - Wellhead	Work with the Planning Board and the Peabody City Council to compare land use controls to see that they meet current requirements of 310 CMR 22.20 (B) and 310 CMR 22.20 (C). Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	UNKNOWN	Work with communities of Lynn, Lynnfield, and Salem to include Peabody watersheds in their protection controls.
Planning		
Does the PWS have a local surface water and wellhead protection plan?	NO	Develop and implement a surface water supply and wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" and "Developing a Local Surface Water Supply Protection . Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	SOME	Currently, outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the Zone C.

3-0003766, 3-0003958, 3-0004022, 3-0004168, 3-0004170, 3-0012586, 3-0013922, 3-0014811, 3-0014814, 3-0015247, 3-0017097, 3-0019289, 3-0019380, 3-0019519, and 3-0019651. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

8. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the City of Peabody has a groundwater protection bylaw that meets DEP’s Groundwater Protection regulations 310 CMR 22.21; however, local controls do not meet DEP’s Surface Water Protection regulations 310 CMR 22.20 (b) and (c). A Groundwater and Surface Water Supply Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply reservoirs.

Protection Planning Recommendations:

Work with communities within the combined watersheds to:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Encourage watershed towns to adopt controls that meet 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ Continue to work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the towns, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Other land uses and activities within the Protection areas that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Emergency Planning Recommendations for Class B River Intakes

Prevention

Public water suppliers with a river source may take preventive measures to protect the source from unexpected releases. Here are some suggestions.

1. Title III (Emergency Planning and Community Right-to-Know) of the Superfund Amendments & Reauthorization Act (SARA) of 1986 required that each community **develop a comprehensive emergency response plan**. Suppliers should review the existing plan to ensure that water supply issues are satisfactorily addressed in the plan, that current response personnel and their correct telephone numbers are listed, and that the entire plan is regularly reviewed and updated by community officials.

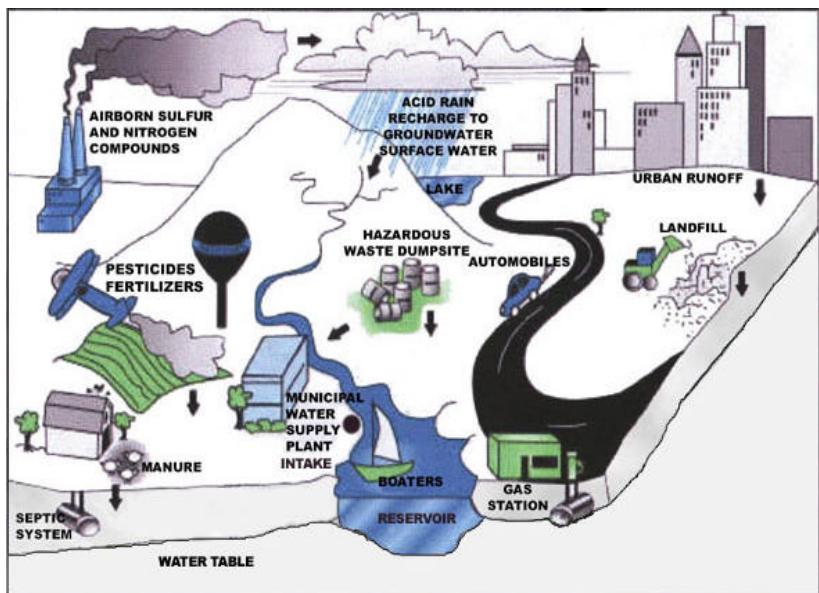
The community plan, or a separate water supplier plan, should include copies of policies in the event of spills or releases; regulatory notification requirements such as what size spills are required to be reported, who to call, telephone numbers, and what information is required to be reported; map of intakes, tributaries, watershed boundaries, adjacent public wells, and locations of sites where spills or accidental releases could occur.

2. **Identify, map and distribute information** to local emergency responders regarding the locations of intakes on the river, tributaries, watershed boundaries, public wells adjacent to river; chemical use at municipal, state, and industrial facilities in watershed (contact Fire Dept., DEP); locations of stormwater drains and the locations of known dams in the event that they can be manipulated by authorized individuals for contaminant control.
The Fire Dept., Board of Health, Planning Board, Local Emergency Planning Committee (LEPC), DEP and others may have existing information to help with your work. SARA requires companies to work with the community's LEPC if they handle extremely hazardous chemicals in quantities above established thresholds.
3. **Develop a communication list** of contacts at upstream and downstream facilities, dams, as well as other public water suppliers on, or adjacent to, rivers. Notify owners and operators of these facilities about the location of your intake and request, in writing, that you be notified immediately in the event of a chemical spill or unexpected discharge. Take this opportunity to educate others about water supply protection.
4. **Provide comments** to municipal boards in other cities/towns in the watershed about proposed development, land use controls, Best Management Practices (BMPs) for stormwater flow into tributaries, and other issues to avoid future problems.
5. **Post signs** along major roads in watershed which direct the public to call "911" or other appropriate local number in case of spills. Be aware of accident-prone areas and transport routes of chemicals if possible.
6. **Educate** the public, local officials, Civil Defense, local emergency response team, and others about water supply protection issues. Educate businesses about toxic use reduction.
7. **Conduct household hazardous waste collection days** and establish permanent collection sites, away from sensitive watershed areas, for used batteries, paints, motor oil, etc.
8. **Conduct drills**, in coordination with local/regional response teams, to test policies and procedures and to practice responding to various situations. Including businesses, local officials and staff, Fire Departments, Boards of Health, Civil Defense, school administration, and others in planning and implementing the drills will allow for several town or region-wide concerns to be addressed and tested at the same time, including: issuing health advisories, conducting neighborhood and/or school evacuations, and evaluating the town's communication system (both making responders aware of the emergency and issuing advisories to the public when necessary via television, radio, and other news media), equipment and emergency plan in general.
9. Critique the drills and **modify components** of the emergency response system as needed.

Responding to Emergencies

Drinking water supply professionals responding to local emergencies need to be adequately prepared and trained, and know their roles and responsibilities. Here are some suggestions.

1. **Know regulatory reporting requirements** of state and federal agencies. Know who to call, telephone numbers and what information to report.
2. **Know your role & responsibilities.** Have access to, and be familiar with, the emergency communication list, policies and procedures for emergency response; know when, and how, to safely handle spills or other events until first responders arrive on scene; know what steps to



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Figure 1: Sample watershed with examples of potential sources of contamination

take to avoid drawing contaminants into the water supply system; be familiar enough with local watershed characteristics to provide incident commander with information and advice.

3. **Provide training and materials to responding staff.** Water supply staff, including new employees, should be adequately trained, have access to appropriate materials (storm drain covers, absorbent pads, booms, etc.), up-to-date policies, procedures, and communication lists to perform tasks for which they are responsible.

Follow-up

Steps can be taken to ensure better preparedness in the event of future emergency situations. Here are some suggestions.

1. **Provide follow-up reports** to the public on the resolution of the situation.
2. **Share the information** learned from drills and real situations with others in order to better protect all public drinking water sources.

Section 4: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Current Land Uses and Source Protection:

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Implementing a program to address combined sewer overflows
- Storm drain stenciling and GIS storm drain mapping programs
- Adopting Community Preservation Act

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Develop and implement a Groundwater and Surface Water Supply Protection Plan.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in watersheds and to cooperate on responding to spills or accidents.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or hazardous materials contamination site.
- ✓ Work cooperatively with Lynnfield Board of Health to develop an inventory of septic systems in watersheds in Lynnfield.
- ✓ Work with businesses and others who have landscaped areas in the watersheds to encourage BMPs for the use of fertilizer and pesticide.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Continue to inspect the Zone A and Zone I areas regularly, and when feasible, remove prohibited non-water supply activities.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 5: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN PEABODY WATER SUPPLY PROTECTION AREAS AND IPSWICH RIVER WATERSHED

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
288793	FILA RESEARCH AND DEVELOPMENT CENTER	83 PINE ST	PEABODY	PLANT	BELOW AQ REGULATED THRESHOLDS
332155	FRANK T VARINOS DMD & ASSOCIATES	215 NEWBURY STREET SUITE 201	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
296784	GAETA ENTERPRISES INC	14 NEWBURYPORT TNPk	PEABODY	DISCH	INDUSTRIAL SEWER WASTE WATER
296784	GAETA ENTERPRISES INC	14 NEWBURYPORT TNPk	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
296784	GAETA ENTERPRISES INC	14 NEWBURYPORT TNPk	PEABODY	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
317605	PEABODY DEPARTMENT OF PUBLIC SERVICE	38 BUTTERNUT AVE	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
136102	PEABODY PUMP N PANTRY	137 NEWBURY ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
30818	PURITAN LAWN MEMORIAL PARK	185 LAKE ST	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
33798	REDI RITE AUTO BODY	80 NEWBURY ST	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
325681	SHELL 137824	14 NEWBURYPORT TPKE	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
134238	SIGNET TOOL & ENGINEERING INC	205 NEWBURY ST	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
307945	GETTY 30715	ROUTE 125	ANDOVER	FUEL DISPENSER	FUEL DISPENSER
33003	MA DEPARTMENT OF PUBLIC WORKS	RTE 25 & PROSPECT ST	ANDOVER	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
295264	BELLS CAMERA & VIDEO	184 CAMBRIDGE ST	BURLINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
35978	BONNIE BRITE CLEANERS	120 CAMBRIDGE ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
351657	BURLINGTON BOARD OF HEALTH	61 CENTER ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32943	NEAT N CLEAN DRY CLEANERS	228 CAMBRIDGE ST	BURLINGTON	PLANT	AIR QUALITY PERMIT
320034	SHELL	198 CAMBRIDGE ST	BURLINGTON	FUEL DISPENSER	FUEL DISPENSER
320034	SHELL	198 CAMBRIDGE ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
53498	BURLINGTON TOWN OF	29 CENTER ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
278798	BOSTIK INC	211 BOSTON ST	MIDDLETON	TURA REPORTER	LARGE QUANTITY TOXIC USER

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
278798	BOSTIK INC	211 BOSTON ST	MIDDLETON	HANDLER	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
278798	BOSTIK INC	211 BOSTON ST	MIDDLETON	HANDLER	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
278798	BOSTIK INC	211 BOSTON ST	MIDDLETON	DISCHARGE	INDUSTRIAL WASTE WATER SURFACE DISCHARGE WATER MAJOR
278798	BOSTIK INC	211 BOSTON ST	MIDDLETON	HANDLER	TREATMENT STORAGE DISPOSAL FACILITY RCRA HAZARDOUS WASTE
39508	MIDDLETON TRANSFER STATION	11 NATSUE WAY OFF RIVER ST	MIDDLETON	TRANSFER STATION	SMALL TRANSFER STATION
327742	7 ELEVEN 30238	237 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
52711	ADDISON WESLEY CO	1 JACOB WAY	NORTH READING	PLANT	AIR QUALITY PERMIT
311762	ADVANCED PHOTO INC	4 LOWELL RD	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
251722	BARD MEDISYSTEMS	87 CONCORD ST	NORTH READING	HANDLER	BELOW HAZARDOUS WASTE REG LEVELS
	BARD MEDISYSYEMS	87 CONCORD ST	NORTH READING	TURA REPORTER	BELOW TOXICS USE REDUCTION REG LEVELS
300381	BOBCAT OF BOSTON INC	20 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
134192	CAROUSEL CLEANERS	265 MAIN ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
29369	CENTRE TRUCKING SERVICES INC	81 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
34893	CHASE TRANSMISSIONS	90 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
315041	COMMONWEALTH OIL INC	290 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
135959	DB MART 34	231 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
281186	DOUGLAS DESIGN AND CONSTRUCTION INC	126 MAIN ST UNIT 7	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
134191	DYAR SALES & MACHINERY CO	75 CONCOR. ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
367739	EXXONMOBIL OIL CORP	160 PARK ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
29166	GALLANT ELECTRIC MOTOR SERVICE	206 NORTH ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
525	GREENBRIAR ESTATES CONDOMINIUMS	MAIN ST & RTE 28	NORTH READING	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE
35155	HEFFRON MATERIALS	68 WINTER ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
293945	HILLVIEW COUNTRY CLUB	149 NORTH ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
34380	HONDA BARN	260 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
31903	JOES SERVICE CENTER	31 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
121254	LILY TRUCK LEASING	84 CONCORD ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
135961	M&H AUTO SERVICE	1 WASHINGTON ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
33375	MA ONE AUTO BODY	340 MAIN ST RTE 28	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
297362	MEADOWVIEW HEALTHCARE NURSING CENTER	134 NORTH ST	NORTH READING	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE
341296	MICHAELS AUTOBODY	126 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
	MOBIL 11939	MAIN STREET	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
131087	MSM INDUSTRIES INC	60 CONCORD ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
132775	NEW ENGLAND MOTOR FREIGHT INC	90 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
31816	NIXDORF COMPUTER CORP	80 MAIN ST RTE 28	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327420	NORTH READING DEPARTMENT OF PUBLIC WORKS	166 CHESTNUT ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327420	NORTH READING DEPARTMENT OF PUBLIC WORKS	166 CHESTNUT ST	NORTH READING	PLANT	AIR QUALITY PERMIT
327420	NORTH READING DEPARTMENT OF PUBLIC WORKS	166 CHESTNUT ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
329093	NORTH READING FIRE DEPARTMENT	152 PARK ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
317950	NORTH READING HIGH SCHOOL	PARK ST	NORTH READING	PLANT	AIR QUALITY PERMIT
31169	NORTH READING HONDA	49 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
328706	NORTH READING SCHOOL DEPARTMENT	191 PARK ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327939	NORTH READINGS BEST	144 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
312394	NORTH SHORE PRINTING INC	281 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
226966	PACETTI CORPORATION	4 HALLBERG PARK	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
31554	PARAMOUNT AUTO CENTER INC	324 MAIN ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
887	PARK COLONY CONDOMINIUM TRUST	36-46 MAIN ST	NORTH READING	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE
31861	PAULS NORTH READING AUTO BODY INC	240 PARK ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
178012	QUICK MART NUMBER 30238	237 MAIN ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
36091	READING MOWER SERVICE	90 MAIN ST BAY 13	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132160	RICHARDSONS SERVICE STA	21 WINTER ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
330270	ROUTE 28 MOTORS EXCHANGE	137 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
371811	SERVIS CLEANERS	20A MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327759	SPENCER COMPANY	CENTRAL ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
178106	STAR MARKETS COMPANY INC	265 MAIN ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
365930	STOP & SHOP GAS 68	97 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
135981	SUN COMPANY INC	142 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
339694	SUNBRIDGE CARE & REHABILITATION CENTER	134 NORTH ST	NORTH READING	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE
38031	SUNOCO SERVICE STATION	146 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
33770	THOMAS DAN AUTO BODY INC	209 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37855	TRAILBLAZER KAWASAKI INC	49 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
311325	US POSTAL SERVICE	76 MAIN ST	NORTH READING	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE
311325	US POSTAL SERVICE MIDDLESEX ESSEX P&DC	76 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
38000	VALVOLINE INSTANT OIL CHANGE	216 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
319070	VERIZON NEW ENGLAND INC	74 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325148	WALMART #2660	72 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
333802	WILLIAMS AND PARTNERS	66 CONCORD ST	NORTH READING	DISCHARGE	BELOW INDUSTRIAL WASTE WATER REG LEVELS

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
333802	WILLIAMS AND PARTNERS	66 CONCORD ST	NORTH READING	PLANT	AIR QUALITY PERMIT
333802	WILLIAMS AND PARTNERS	66 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
333802	WILLIAMS AND PARTNERS	66 CONCORD ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
333802	WILLIAMS AND PARTNERS	66 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
32694	MA DEPARTMENT OF PUBLIC WORKS	9 CAUSEWAY RD	READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
32694	MA HIGHWAY SITE 76	9 CAUSEWAY RD	READING	FUEL DISPENSER	FUEL DISPENSER
367789	MOBIL 10534	1330 MAIN ST	READING	FUEL DISPENSER	FUEL DISPENSER
209957	SANBORN HILL SERVICE STATION	1462 MAIN ST	READING	FUEL DISPENSER	FUEL DISPENSER
132254	AAMCO TRANSMISSIONS	611 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131607	AGFA DIVISION, BAYER CORPORATION	200 BALLARDVALE ST	WILMINGTON	DISCHARGE	MWRA SEWER CONNECTION
131607	AGFA DIVISION, BAYER CORPORATION	200 BALLARDVALE ST	WILMINGTON	TURA REPORTER	BELOW TOXICS USE REDUCTION REG LEVELS

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131607	AGFA DIVISION, BAYER CORPORATION	200 BALLARDVALE ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
377210	AGGREGATE INDUSTRIES	900 SALEM ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
377210	AGGREGATE INDUSTRIES	900 SALEM ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
32439	ALS SERVICE CENTER	103 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131268	AMETEK AEROSPACE PRODUCTS, INC.	50 FORDHAM RD	WILMINGTON	PLANT	AIR QUALITY PERMIT
131268	AMETEK AEROSPACE PRODUCTS, INC.	50 FORDHAM RD	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
131268	AMETEK AEROSPACE PRODUCTS, INC.	50 FORDHAM RD	WILMINGTON	TURA REPORTER	BELOW TOXICS USE REDUCTION REG LEVELS
131259	ANALOG DEVICES INC	804 WOBURN ST	WILMINGTON	DISCHARGE	MWRA SEWER CONNECTION
131259	ANALOG DEVICES INC	804 WOBURN ST	WILMINGTON	PLANT	RES APPLICATION APPROVED
131259	ANALOG DEVICES INC	804 WOBURN ST	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131259	ANALOG DEVICES INC	804 WOBURN ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
114468	ANTONS CLEANERS INC	240 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
323732	APPLIED SCIENCE & TECHNOLOGY	90 INDUSTRIAL WAY	WILMINGTON	PLANT	AIR QUALITY PERMIT
323732	APPLIED SCIENCE & TECHNOLOGY	90 INDUSTRIAL WAY	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
357200	AZORES CORP	260 FORDHAM RD	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327930	B & L ENTERPRISES	880 MAIN ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
365790	BENEVENTO ASPHALT CORP	900 SALEM ST	WILMINGTON	PLANT	RES APPLICATION APPROVED
52799	BENEVENTO SAND & STONE	900 SALEM ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
371015	BROOKS PHARMACY 582	208 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
36008	BROWNS CUSTOM AUTO BODY	210 ANDOVER ST UNIT 12	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
933	BUTTERS ROW WTP	TOWN HALL, WATER DEPT	WILMINGTON	SURFACE DISCHARGE	SURFACE DISCHARGE WATER DISCHARGE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
28543	CAIN FRED F CHRYSLER PLYMOUTH	580 MAIN ST	WILMINGTON	DISCHARGE	AIR QUALITY PERMIT
293634	CAR MART INC	275 MAIN ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
134424	CHARLIES AUTO BODY	611 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
116704	COOPER INDUSTRIES INC	226 ANDOVER ST	WILMINGTON	TURA REPORTER	BELOW TOXICS USE REDUCTION REG LEVELS
249734	CVS #1845	240 MAIN ST	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
338875	DEE RAY INC	919 MAIN ST	WILMINGTON	DISCHARGE	MWRA SEWER CONNECTION
132251	DIAMOND CRYSTAL SALT CO	10 BURLINGTON AVE	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
335016	DR SEVAK ABRAHAMIAN DDS	384 MIDDLESEX AVENUE	WILMINGTON	HANDLER	AIR QUALITY PERMIT
26009	DUPONT E I DENEMOURS & CO INC	1 CORNELL PL	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
376134	DUPONT PHOTONICS TECHNOLOGIES	100 FORDHAM RD	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
900	DYNAMICS RESEARCH CORP	60 CONCORD ST	WILMINGTON	PLANT	AIR QUALITY PERMIT

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
900	DYNAMICS RESEARCH CORP	60 CONCORD ST	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
132256	E T M MFG	21 CONCORD ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
35996	ENGELHARD CORP	201 BALLARDVALE ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
306387	ENGLEHARD CORPORATION	201 BALLARDVILLE ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
30080	F & R AUTO SUPPLY CORP	160 LOWELL ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32345	FEDERAL EXPRESS CORP	10 CORNELL PL	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32267	FIRESTONE STORE	496 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
323173	FISHMAN TRANSDUCERS	340D FORDHAM RD	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
345501	FLAGSHIP HYUNDAI INC	220 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
311484	G&G PRINTING COMPANY	214 ANDOVER ST #7	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
311484	G&G PRINTING COMPANY	214 ANDOVER ST #7	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
191962	GETOV MACHINE INC	150 WEST ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
335097	GFI BIG JOE LLC	1 BURLINGTON AVENUE	WILMINGTON	PLANT	AIR QUALITY PERMIT
126548	GIBBS OIL 1595	342 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
319131	GLENS FALLS LEHIGH CEMENT COMPANY	90 EAMES ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
134423	HAMPSHIRE PRESS INC THE	900 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
336596	HEFFRONS AUTOMOTIVE	603 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
126538	HESS 21206	273 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
307025	HESS STATION 21206	273 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
31409	HIGH TECH MACHINE & TOOL INC	218 ANDOVER ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
36358	IDEAL SERVICE RD	210 ANDOVER ST BAY 20	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
334924	INDUSTRIAL TOOL REPAIR CORPORATION	382 MIDDLESEX AVENUE	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
357434	INTELLISENSE CORPORATION	36 JONSPIN RD	WILMINGTON	PLANT	AIR QUALITY PERMIT
134414	J J T ENGINEERING INC	319 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
126549	JIMMYS GARAGE INC	945 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
10461	KIRKWOOD TECHNICAL PUBLICATIONS	904 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
10461	KIRKWOOD TECHNICAL PUBLICATIONS	904 MAIN ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
131274	KOCH MEMBRANE SYSTEMS INC	850 MAIN ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
131274	KOCH MEMBRANE SYSTEMS INC	850 MAIN ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
131274	KOCH MEMBRANE SYSTEMS INC	850 MAIN ST	WILMINGTON	DISCHARGE	MWRA SEWER CONNECTION
301506	LARRYS GAS INC	880 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
330234	LARRYS OIL & BURNER SERVICE	880 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
31850	LOCHART MACHINE CO	287 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
39914	MAPLE MEADOW LANDFILL PROJECT	923 MAIN ST	WILMINGTON	SOLIDWASTE LANDFILL	LANDFILL
215608	MARTIN MARIETTA CORP	50 FORDHAM RD	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
367888	MOBIL 11733	318 LOWELL ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
370415	NEORESINS INC	730 MAIN ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
370415	NEORESINS INC	730 MAIN ST	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
370415	NEORESINS INC	730 MAIN ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
334914	NORTH WILMINGTON SERVICE INC	360 MIDDLESEX AVE	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
334914	NORTH WILMINGTON SERVICE INC	360 MIDDLESEX AVE	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
131605	OLIN CORPORATION	51 EAMES ST	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
131605	OLIN CORPORATION	51 EAMES ST	WILMINGTON	DISCHARGE	INDUSTRIAL WASTE WATER TO SEWER
363566	PACIFIC SCIENTIFIC CORPORATION	110 FORDHAM RD	WILMINGTON	PLANT	AIR QUALITY PERMIT

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132255	PEPSI COLA BOTTLING GROUP	111 EAMES ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
280472	PRECISION GRAPHICS	3A LOPEZ RD	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
327059	RACHEL A PERLITSH DMD	25 LOWELL ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132847	REGIONAL HEALTH CENTER	500 SALEM ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
341505	ROUTE 38 GAS & SERVICE	603 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
134419	SHEA CONCRETE PRODUCTS INC	773 SALEM ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
134419	SHEA CONCRETE PRODUCTS INC	773 SALEM ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325894	SHELL 137892	586 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
325893	SHELL 137893	361 MIDDLESEX AVE	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
373667	SILVER LAKE DENTAL	96 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
306507	SIR SPEEDY PRINTING 81710	609 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
372031	SMART MODULAR TECHNOLOGIES	7 LOPEZ RD	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
35575	SMITH JR ARTHUR R INC	214 ANDOVER ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
117230	STAFFORD MANUFACTURING CORP	256 ANDOVER ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
117230	STAFFORD MANUFACTURING CORP	256 ANDOVER ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
117230	STAFFORD MANUFACTURING CORP	256 ANDOVER ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37314	STRAIGHTLINE AUTO BODY INC	210 ANDOVER ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131254	SURFACE COATING INC	100 EAMES ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
131254	SURFACE COATING INC	100 EAMES ST	WILMINGTON	DISCHARGE	MWRA SEWER CONNECTION
131265	TEXTRON SYSTEMS CORPORATION	201 LOWELL ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
131267	THERMO ELECTRON TECOMET	115 EAMES ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
131267	THERMO ELECTRON TECOMET	115 EAMES ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131267	THERMO ELECTRON TECOMET	115 EAMES ST	WILMINGTON	DISCHARGE	MWRA SEWER CONNECTION
364503	TOSCO CORP	205 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
210017	TOWN MARKET CITGO	490 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
37327	U HAUL CENTER OF WILMINGTON	687 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
294759	VILLAGE CLEANERS	211 LOWELL ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
215600	WATERS PRINTING CO INC	12 WALTHAM ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
215600	WATERS PRINTING CO INC	12 WALTHAM ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
308853	WILMINGTON DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
308853	WILMINGTON DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
38283	WILMINGTON FABRICATORS INC	235 ANDOVER ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

UNDERGROUNDWATER DISCHARGE STORAGE TANKS WITHIN PEABODY WATER SUPPLY PROTECTION AREAS AND IPSWICH RIVER WATERSHED

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
GAETA TOWING SERVICES INC	136 NEWBURY ST	PEABODY	GAS STATION	10000	GASOLINE
GAETA TOWING SERVICES INC	136 NEWBURY ST	PEABODY	GAS STATION	10000	GASOLINE
GAETA TOWING SERVICES INC	136 NEWBURY ST	PEABODY	GAS STATION	4000	DIESEL
LAKE STREET CITGO	26 LAKE ST	PEABODY	GAS STATION	10000	GASOLINE
LAKE STREET CITGO	26 LAKE ST	PEABODY	GAS STATION	6000	GASOLINE
LAKE STREET CITGO	26 LAKE ST	PEABODY	GAS STATION	4000	GASOLINE
LAKE STREET CITGO	26 LAKE ST	PEABODY	GAS STATION	2000	GASOLINE
SHELL SERVICE STATION 22060860404	14 NEWBURYPORT TURNPIKE	PEABODY	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION 22060860404	14 NEWBURYPORT TURNPIKE	PEABODY	GAS STATION	12000	GASOLINE
JHK INC - J & H AUTO/TRUCK REPAIR	129 NEWBURY ST	PEABODY	GAS STATION	12000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
JHK INC - J & H AUTO/TRUCK REPAIR	129 NEWBURY ST	PEABODY	GAS STATION	20000	GASOLINE
SHELL SERVICE STATION 22060860404	14 NEWBURYPORT TURNPIKE	PEABODY	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION 22060860404	14 NEWBURYPORT TURNPIKE	PEABODY	GAS STATION	12000	GASOLINE
BURLWOOD REALTY CORP	11 GRANT AVE	BURLINGTON	OTHER	4000	DIESEL
SHELL SERVICE STATION #137722	198 CAMBRIDGE ST	BURLINGTON	GAS STATION	10000	DIESEL
SHELL SERVICE STATION #137722	198 CAMBRIDGE ST	BURLINGTON	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION #137722	198 CAMBRIDGE ST	BURLINGTON	GAS STATION	10000	GASOLINE
TOWN OF BURLINGTON	29 CENTER ST	BURLINGTON	MUNICIPAL	10000	GASOLINE
TOWN OF BURLINGTON	29 CENTER ST	BURLINGTON	MUNICIPAL	6000	DIESEL
7-ELEVEN	237 MAIN ST	NORTH READING	GAS STATION	8000	GASOLINE
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	HAZARDOUS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	10000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	2500	OTHER
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	2500	OTHER
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	OTHER
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	10000	HAZARDOUS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	OTHER
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	10000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	OTHER
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	5000	HAZARDOUS
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	9950	FUEL OIL
7-ELEVEN	237 MAIN ST	NORTH READING	GAS STATION	8000	GASOLINE
7-ELEVEN	237 MAIN ST	NORTH READING	GAS STATION	8000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
BOBCAT OF BOSTON INC	20 CONCORD ST	NORTH READING	VEHICLE DEALER	3000	GASOLINE
LILY TRUCK LEASING CORP	84 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL
LILY TRUCK LEASING CORP	84 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL
M H AUTO SERVICE INC	1 WASHINGTON ST	NORTH READING	GAS STATION	8000	GASOLINE
M H AUTO SERVICE INC	1 WASHINGTON ST	NORTH READING	GAS STATION	4000	GASOLINE
M H AUTO SERVICE INC	1 WASHINGTON ST	NORTH READING	GAS STATION	4000	DIESEL
MOBIL	160 PARK AVE	NORTH READING	GAS STATION	10000	GASOLINE
MOBIL	160 PARK AVE	NORTH READING	GAS STATION	8000	GASOLINE
MOBIL	160 PARK AVE	NORTH READING	GAS STATION	6000	GASOLINE
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	8000	WASTE OIL
NORTH READING'S BEST	142 MAIN ST	NORTH READING	GAS STATION	10000	GASOLINE
NORTH READING'S BEST	142 MAIN ST	NORTH READING	GAS STATION	10000	GASOLINE
NORTH READING'S BEST	142 MAIN ST	NORTH READING	GAS STATION	10000	GASOLINE
NORTH READING TEXACO	231 MAIN ST	NORTH READING	GAS STATION	10000	GASOLINE
NORTH READING TEXACO	231 MAIN ST	NORTH READING	GAS STATION	8000	GASOLINE
NORTH READING TEXACO	231 MAIN ST	NORTH READING	GAS STATION	5000	DIESEL
ROADWAY EXPRESS INC	95 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	8000	DIESEL
ROADWAY EXPRESS INC	95 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	8000	DIESEL
TEMPLE OIL SERVICE	290 MAIN ST	NORTH READING	GAS STATION	15000	DIESEL
TEMPLE OIL SERVICE	290 MAIN ST	NORTH READING	GAS STATION	15000	FUEL OIL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
THOMSON COUNTRY CLUB	20 ELM ST	NORTH READING	OTHER	2500	GASOLINE
THOMSON COUNTRY CLUB	20 ELM ST	NORTH READING	OTHER	2500	FUEL OIL
MASS DPW MAINT DEPOT	CAUSEWAY RD	READING	STATE	6000	GASOLINE
MASS DPW MAINT DEPOT	CAUSEWAY RD	READING	STATE	6000	DIESEL
MOBIL	1330 MAIN ST	READING	GAS STATION	10000	GASOLINE
MOBIL	1330 MAIN ST	READING	GAS STATION	10000	GASOLINE
MOBIL	1330 MAIN ST	READING	GAS STATION	10000	DIESEL
MOBIL	1330 MAIN ST	READING	GAS STATION	550	FUEL OIL
MOBIL	1330 MAIN ST	READING	GAS STATION	550	WASTE OIL
READING GLOBAL	1337 MAIN ST	READING	GAS STATION	15000	GASOLINE
READING GLOBAL	1337 MAIN ST	READING	GAS STATION	14000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
READING GLOBAL	1337 MAIN ST	READING	GAS STATION	500	WASTE OIL
SANBORN HILL SERVICE STATION	1462 MAIN ST	READING	GAS STATION	6000	GASOLINE
SANBORN HILL SERVICE STATION	1462 MAIN ST	READING	GAS STATION	6000	GASOLINE
SANBORN HILL SERVICE STATION	1462 MAIN ST	READING	GAS STATION	2000	GASOLINE
BELL ATLANTIC	408 MAIN ST	WILMINGTON	UTILITIES	2500	DIESEL
DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	MUNICIPAL	10000	GASOLINE
DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	MUNICIPAL	10000	DIESEL
DYNAMICS RESEARCH CORP	50 CONCORD ST	WILMINGTON	OTHER	4000	OTHER
EXXONMOBIL OIL CORPORATION	316 LOWELL ST	WILMINGTON	GAS STATION	12000	GASOLINE
EXXONMOBIL OIL CORPORATION	316 LOWELL ST	WILMINGTON	GAS STATION	10000	GASOLINE
EXXONMOBIL OIL CORPORATION	316 LOWELL ST	WILMINGTON	GAS STATION	6000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
EXXONMOBIL OIL CORPORATION	316 LOWELL ST	WILMINGTON	GAS STATION	1000	GASOLINE
FRED'S SERVICE CENTER	324 MAIN ST	WILMINGTON	GAS STATION	10000	GASOLINE
FRED'S SERVICE CENTER	324 MAIN ST	WILMINGTON	GAS STATION	4000	GASOLINE
HESS STATION	273 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
HESS STATION	273 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
HESS STATION	273 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
JOE BARRY OIL INC	312 MAIN ST	WILMINGTON	PETROLEUM DISTRIBUTOR	20000	FUEL OIL
JOE BARRY OIL INC	312 MAIN ST	WILMINGTON	PETROLEUM DISTRIBUTOR	20000	FUEL OIL
JOE BARRY OIL INC	312 MAIN ST	WILMINGTON	PETROLEUM DISTRIBUTOR	20000	DIESEL
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	16000	HAZARDOUS
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	16000	HAZARDOUS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	16000	HAZARDOUS
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	16000	HAZARDOUS
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	8000	HAZARDOUS
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	8000	HAZARDOUS
R & V REALTY TRUST	360 MIDDLESEX AVE	WILMINGTON	GAS STATION	8000	GASOLINE
R & V REALTY TRUST	360 MIDDLESEX AVE	WILMINGTON	GAS STATION	6000	GASOLINE
R & V REALTY TRUST	360 MIDDLESEX AVE	WILMINGTON	GAS STATION	6000	GASOLINE
RT 38 GAS AND SERVICE	603 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
RT 38 GAS AND SERVICE	603 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
RT 38 GAS AND SERVICE	603 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE
RT 38 GAS AND SERVICE	603 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
SHELL SERVICE STATION	361 MIDDLESEX AVE	WILMINGTON	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION	361 MIDDLESEX AVE	WILMINGTON	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION	361 MIDDLESEX AVE	WILMINGTON	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION	361 MIDDLESEX AVE	WILMINGTON	GAS STATION	1000	WASTE OIL
SHELL SERVICE STATION	586 MAIN ST & LOWELL	WILMINGTON	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	586 MAIN ST & LOWELL	WILMINGTON	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	586 MAIN ST & LOWELL	WILMINGTON	GAS STATION	10000	GASOLINE
TEXTRON SYSTEMS CORP	201 LOWELL ST	WILMINGTON	INDUSTRIAL	20000	FUEL OIL
TEXTRON SYSTEMS CORP	201 LOWELL ST	WILMINGTON	INDUSTRIAL	20000	FUEL OIL
TEXTRON SYSTEMS CORP	201 LOWELL ST	WILMINGTON	INDUSTRIAL	1000	FUEL OIL
TOWN MARKET CITGO	490 MAIN ST	WILMINGTON	GAS STATION	8000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
TOWN MARKET CITGO	490 MAIN ST	WILMINGTON	GAS STATION	5000	GASOLINE
TOWN MARKET CITGO	490 MAIN ST	WILMINGTON	GAS STATION	5000	GASOLINE

FOR MORE INFORMATION ON UNDERGROUNDWATER DISCHARGE STORAGE TANKS, VISIT THE MASSACHUSETTS DEPARTMENT OF FIRE SERVICES WEB SITE: [HTTP://WWW.STATE.MA.US/DFS/UST/USTHOME.HTM](http://www.state.ma.us/dfs/ust/usthome.htm)

NOTE: THIS APPENDIX INCLUDES ONLY THOSE FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA(S) THAT MEET STATE REPORTING REQUIREMENTS AND REPORT TO THE APPROVED APPROPRIATE AGENCIES. ADDITIONAL FACILITIES LOCATED WITHIN THE WATER SUPPLY PROTECTION AREA(S) SHOULD BE CONSIDERED IN LOCAL DRINKING WATER SOURCE PROTECTION PLANNING.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Peabody Water Supply Protection Areas and Ipswich River Watershed

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0001813	Route 125 North Andover Bypass	Andover	Oil
3-0011228	4 Brookfield Rd	Burlington	Oil
3-0001494	Boston St	Middleton	Oil
3-0006026	24 Hilldale Ave	Middleton	Oil
3-0000692	60 Concord St	North Reading	--
3-0002363	95 Concord St	North Reading	Oil
3-0002584	70 Concord St	North Reading	--
3-0002804	5 Hallberg Park	North Reading	--

RTN	Release Site Address	Town	Contaminant Type
3-0003925	237 Main St	North Reading	--
3-0004007	Cedar St	North Reading	Oil
3-0004466	4 Lowell Rd	North Reading	Oil
3-0004468	142 Main St	North Reading	--
3-0004481	1 Boxwood Rd	North Reading	Oil
3-0017390	80 Concord St	North Reading	Hazardous Material
3-0001565	144 Newbury St	Peabody	Oil
3-0004161	153 Newbury St	Peabody	Oil
3-0016711	137 Newbury St	Peabody	Oil
3-0013565	Causeway St/Ma Hwy Dept	Reading	Oil and Hazardous Material
3-0000471	51 Eames St	Wilmington	Oil
3-0000518	50 Fordham Rd	Wilmington	Oil
3-0000625	I-93 @ Lowell St	Wilmington	--
3-0000776	324 Main St	Wilmington	--
3-0001728	945 Main St	Wilmington	Oil
3-0001916	101 Main St	Wilmington	Oil
3-0001973	804 Woburn St	Wilmington	Oil
3-0002549	730 Main St	Wilmington	
3-0002889	273 Main St	Wilmington	--
3-0003548	603 Main St	Wilmington	--
3-0003766	100 Ainsworth Rd	Wilmington	Oil
3-0003958	275 Main St	Wilmington	
3-0004022	103 Main St	Wilmington	--
3-0004170	319a Andover St	Wilmington	Oil
3-0012586	586 Main St	Wilmington	Oil
3-0013922	312 Main St	Wilmington	Oil
3-0014811	315-319 Main St	Wilmington	Hazardous Material

RTN	Release Site Address	Town	Contaminant Type
3-0014814	255 Andover St	Wilmington	Hazardous Material
3-0015247	1 Burlington Ave	Wilmington	Hazardous Material
3-0017097	80 Industrial Way	Wilmington	Hazardous Material
3-0019380	80 Industrial Way	Wilmington	Hazardous Material
3-0019651	212 Main St	Wilmington	Oil and Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Randolph/Holbrook Joint Water Board

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Randolph-Holbrook Joint Water Board
<i>PWS Address</i>	50 North Franklin Street
<i>City/Town</i>	Holbrook, Massachusetts
<i>PWS ID Number</i>	3244001
<i>Local Contact</i>	Thomas Cummings
<i>Phone Number</i>	(781) 767-1800

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures.

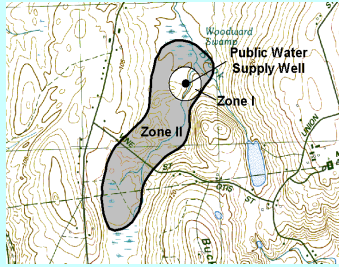
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

<i>IWPA</i>		<i>Susceptibility: High</i>	
<i>Well Names</i>	<i>Source IDs</i>		
South Street Well #3	3244000-01G		
South Street Well #2	3244000-02G		
South Street Well #1	3244000-03G		
Donna Road Tubular Wells	3244000-04G		
<i>Zone II #: 222</i>		<i>Susceptibility: High</i>	
<i>Well Names</i>	<i>Source IDs</i>		
Donna Road Well	3244000-0AG		

The Randolph-Holbrook Joint Water Board (Randolph-Holbrook) maintains and operates five public water supply sources. Randolph/Holbrook's sources are located within the Weymouth & Weir River basin. The wellhead protection area for the Donna Road Well (0AG), which is a proposed well, is located entirely within the town of Holbrook. This well has a Zone I radius of 400 feet.

South Street Well #3 (01G), South Street Well #2 (02G), and South Street Well #1 (03G), all of which are inactive sources, have Interim Wellhead Protection Areas (IWPAs) that are located in Holbrook and Randolph. The Donna Road Tubular Wells (04G), which is also an inactive source, has an IWPA that is located entirely in Holbrook. Tubular wells have a Zone I radius of 250 feet around each well; the Zone I radius for the other wells is 400 feet. All of the wells are located in aquifers with a high vulnerability to contamination due to the absence of a hydrogeologic barrier (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the IWPA.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The IWPAs and Zone II for Randolph-Holbrook are primarily a mixture of forest and residential land uses, with portions consisting of mining, commercial, and industrial activities (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous Materials Storage and Use
3. Residential Land Uses
4. Federal Superfund Site and Oil or Hazardous Material Contamination Sites
5. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the all of Randolph-Holbrook's wells is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone Is – Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as public roads.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.



2. Hazardous Materials Storage and Use – A small percent of the land area within the Zone II and IWPA contains commercial, industrial, and mining land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in USTs/ASTs. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure "Industrial Floor Drains" for more information.

3. Residential Land Uses – Residential areas are common throughout the IWPA and Zone IIs. Some of the areas have public sewers, and some use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

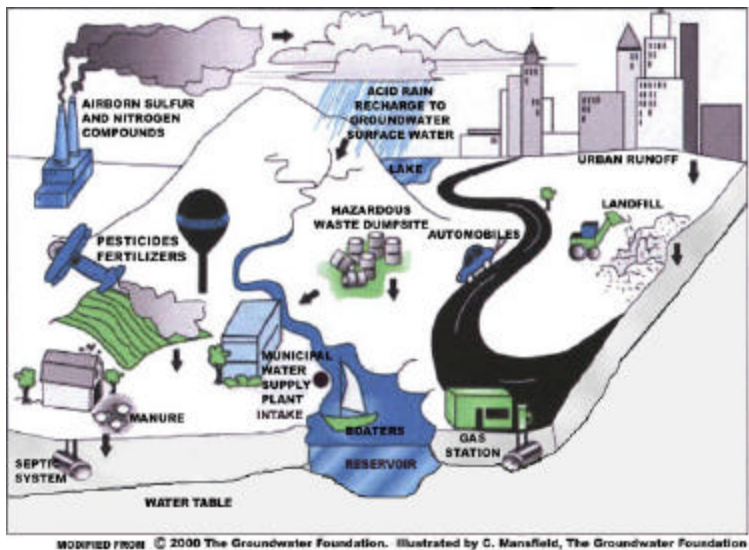


Figure 1: Sample watershed with examples of potential sources of contami-

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

**When you wash your car in the driveway,
Remember
you're not *just* washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

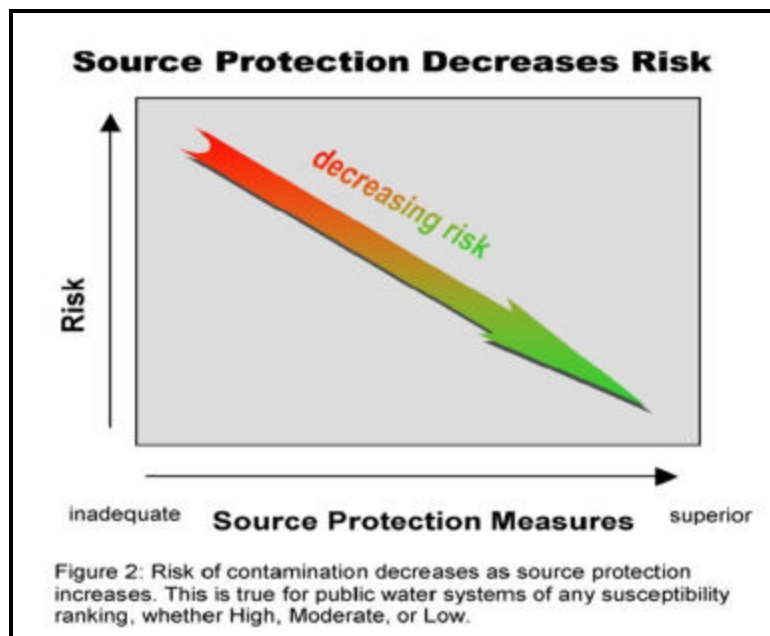
4. Federal Superfund Site and Oil or Hazardous Material Contamination Sites -

The IWPA for the South Street Wells contains a United States Environmental Protection Agency (USEPA) Superfund Site that is associated with a DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 3-0000333. Refer to the attached map and Appendix 3 for more information.

The Superfund Site is the contributor to the historic contamination at the South Street Wells.

Federal Superfund Site and Oil or Hazardous Material Contamination Sites Recommendation:

(Continued on page 6)



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (IWPA and Zones II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II #/ Source ID #	Potential Contaminant Sources*
Agricultural				
Nurseries	1	M	222	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Commercial				
Body Shops	1	H	222	Improper management of vehicle paints, solvents, and primer products
Gas Stations	2	H	222	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	1	H	222	Automotive fluids and solvents: spills, leaks, or improper handling
Bus and Truck Terminals	3	H	IWPA	Spills, leaks, or improper handling of fuels and maintenance chemicals
Sand and Gravel Mining/ Washing	1	M	04G	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial				
Asphalt, Coal Tar, and Concrete Plants	1	M	222	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Electroplaters	1	H	222	Spills, leaks, or improper handling or storage of solvents and other chemicals
Hazardous Materials Storage	1	H	01G, 02G, 03G	Spills, leaks, or improper handling or storage of hazardous materials
Metal Plating	1	H	01G, 02G, 03G	Spills, leaks, or improper handling or storage of solvents, other chemicals, and process wastes
Residential				
Fuel Oil Storage (at residences)	100+	M	All	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	100+	M	All	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	100+	M	All	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous				
Aboveground Storage Tanks	3	M	All	Spills, leaks, or improper handling of materials stored in tanks

Land Uses	Quantity	Threat	Zone II #/ Source ID #	Potential Contaminant Sources*
Miscellaneous				
Large Quantity Hazardous Waste Generators	1	H	01G, 02G, 03G	Spills, leaks, or improper handling or storage of hazardous materials and waste
Oil or Hazardous Material Sites	1	--	01G, 02G, 03G	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Small Quantity Hazardous Waste Generators	2	M	01G, 02G, 03G, 04G	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/Retention Basins	100+	L	All	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Superfund Sites	1	H	01G, 02G, 03G	Spills, leaks, or improper handling or storage of oil or hazardous materials and waste
Underground Storage Tanks	1	H	All	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	2	L	222, 01G, 02G, 03G	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/Recycling Station	1	M	222	Improper management, seepage, and runoff of water contacting waste materials

Table 2 Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

5. Protection Planning – Currently, the Towns of Holbrook and Randolph do not have a groundwater protection bylaw that meets DEP’s Groundwater Protection regulations 310 CMR 22.21. Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Other land uses and activities within the IWPA and Zone II are included in Table 2. Refer to Table 2 and Appendix 2 for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, Randolph-Holbrook's IWPA's and Zone II contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the IWPA's and Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

- 1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
- 2. MA DEP SWAP Strategy
- 3. Land Use Pollution Potential Matrix
- 4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES (Donna Road Well Site)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (South Street Wells, Donna Road Tubular Wells)	To the extent possible, remove prohibited activities in Zone I to comply with DEP's Zone A requirements. Investigate options for gaining ownership or control of the Zone I.
Are the Zone Is posted with "Public Drinking Water Supply" Signs?	NO	Economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone Is regularly inspected?	NO	Wells are inactive and no longer inspected on a daily basis
Are water supply-related activities the only activities within the Zone I?	YES (Donna Road Well Site)	Monitor for any new non-water supply activities in Zone I, and investigate options for removing these activities.
	NO (South Street Well, Donna Road Tubular Wells)	Monitor prohibited activities in Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO	Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	N/A	
Planning		
Does the PWS have a wellhead protection plan?	NO	Develop and implement a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	NO	Address plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	Fire Department	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	NO	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and industrial uses within the IWPA and Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN RANDOLPH-HOLBROOK JOINT WATER BOARD WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132531	ADOLPH BAUER INC	763 SOUTH ST	HOLBROOK	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
36865	BOSTON STEEL FABRICATORS INC	610 SOUTH ST	HOLBROOK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
337999	CONTAINER RECYCLING ALLIANCE	620 SOUTH ST	HOLBROOK	DISCH	MWRA SEWER CONNECTION
317888	CVS #1251	790 SOUTH FRANKLIN ST	HOLBROOK	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
359272	FOSTER SOUTHEASTERN INC	46 SPRING ST	HOLBROOK	PLANT	AIR QUALITY PERMIT
32442	HOLBROOK AUTO BODY	200 SOUTH ST	HOLBROOK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
374229	HOLBROOK FOOD MART	855 SOUTH FRANKLIN ST	HOLBROOK	FULDSP	FUEL DISPENSER
136532	PINE HILL SERVICE STATION INC	776 SOUTH FRANKLIN ST	HOLBROOK	FULDSP	FUEL DISPENSER
326808	STEWARTS EQUIPMENT	670 SOUTH FRANKLIN ST	HOLBROOK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
126830	SUNOCO SERVICE STATION	845 SOUTH FRANKLIN ST	HOLBROOK	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132173	ACCURATE METAL FINISHING INC	414 SOUTH ST	RANDOLPH	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
132173	ACCURATE METAL FINISHING INC	414 SOUTH ST	RANDOLPH	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132173	ACCURATE METAL FINISHING INC. - GREAT POND	414 SOUTH ST	RANDOLPH	TURRPT	LARGE QUANTITY TOXIC USER

UNDERGROUND STORAGE TANKS WITHIN RANDOLPH-HOLBROOK JOINT WATER BOARD WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
GRANT STEEL CO INC	2 MEAR RD	HOLBROOK	OTHER	8050	DIESEL
HOLBROOK FOOD MART	855 S FRANKLIN ST	HOLBROOK	GAS STATION	7820	GASOLINE
HOLBROOK FOOD MART	855 S FRANKLIN ST	HOLBROOK	GAS STATION	7820	GASOLINE
SUNOCO	845 S FRANKLIN ST	HOLBROOK	GAS STATION	10000	GASOLINE
SUNOCO	845 S FRANKLIN ST	HOLBROOK	GAS STATION	5000	GASOLINE
SUNOCO	845 S FRANKLIN ST	HOLBROOK	GAS STATION	5000	GASOLINE

FOR MORE INFORMATION ON UNDERGROUND STORAGE TANKS, VISIT THE MASSACHUSETTS DEPARTMENT OF FIRE SERVICES WEB SITE:
[HTTP://WWW.STATE.MA.US/DFS/UST/USTHOME.HTM](http://www.state.ma.us/dfs/ust/usthome.htm)

NOTE: THIS APPENDIX INCLUDES ONLY THOSE FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA(S) THAT MEET STATE REPORTING REQUIREMENTS AND REPORT TO THE APPROPRIATE AGENCIES. ADDITIONAL FACILITIES LOCATED WITHIN THE WATER SUPPLY PROTECTION AREA(S) SHOULD BE CONSIDERED IN LOCAL DRINKING WATER SOURCE PROTECTION PLANNING.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Randolph-Holbrook Joint Water Board Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0000333	775 South St	Holbrook	Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Reading Water Division

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Reading Water Division
<i>PWS Address</i>	Town Hall/16 Lowell Street
<i>City/Town</i>	Reading, Massachusetts 01867-2648
<i>PWS ID Number</i>	3246000
<i>Local Contact</i>	Edward D. McIntire – DPW Director
<i>Phone Number</i>	(781) 942-9077

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

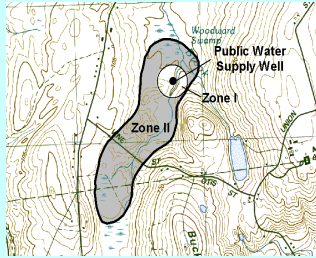
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Zone II #: 318

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Revay Well #1	3246000-03G
Well #2	3246000-04G
Well #3	3246000-05G
B-Line Well	3246000-06G
Town Forest	3246000-07G
Well #82-20	3246000-08G
Well #66-8	3246000-09G
Well #13	3246000-10G
Well #15	3246000-11G

The wells for the Reading Water Division are located within a single water supply protection area, with portions extending into the towns of North Reading and Wilmington. Each well has a Zone I radius of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone II for Reading is a mixture primarily of forest, wetlands, and residential land uses, with a small portion consisting of transportation, commercial, and industrial (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous Materials Storage and Use
3. Road and Maintenance Depot
4. Golf Course
5. Residential Land Uses
6. Transportation Corridors
7. Oil or Hazardous Material Contamination Sites
8. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection area, as seen in Table 2.

1. Activities in Zone I – The Zone I for each well is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as public roads. The following non-water supply activities occur in the Zone I of some of the system's wells:

Well #15 and Well #13 – Route 93 runs through the west side of the Zone I of both wells.

Zone I Recommendations:

- ✓ Coordinate efforts with the Massachusetts Highway Department to design a containment structure on catch basins so as to prevent future spills from entering the wetlands adjacent to the wells, thereby reducing the risk of contamination.
- ✓ Pursue the previous request to the Massachusetts Highway Department for the purpose of creating a “low salt area” on the portion of Route 93 that cuts through the Zone I.

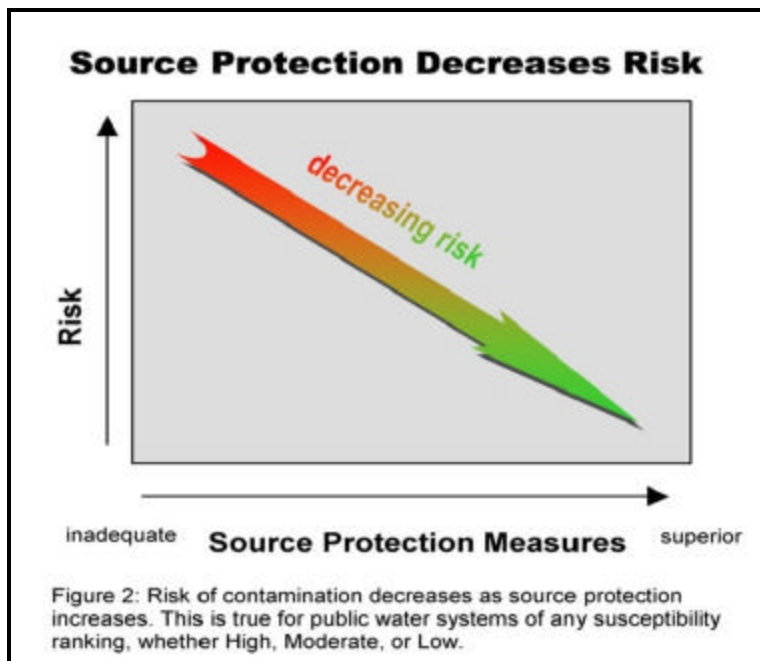
- ✓ Do not use pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Hazardous Materials Storage and Use – Many businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs) and/or Aboveground Storage Tanks (ASTs). If hazardous materials are improperly stored, used, or disposed, they

become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Coordinate efforts with the Town's of North Reading and Wilmington to educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP's for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.



- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

3. Road and Maintenance Depot - The potential for ground water contamination at depots is related to accidental dumps, accidental spills, and vehicle washing operations, or from wastewater treatment or leftover product. Waste management and product storage processes pose the most prevalent threats to ground water, and a wide variety of potentially harmful constituents are involved in release incidents.

Road and Maintenance Depot Recommendations:

- ✓ **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/neeat/muni/index.html>.

4. Golf Course Activities – Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Courses Recommendations:

- ✓ Encourage the golf course grounds manager to incorporate an **Integrated Pest Management (IPM)** approach into their grounds maintenance program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.

- ✓ Promote **Best Management Practices (BMPs)** for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Work with golf courses to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.

5. Residential Land Uses – Approximately 17% of the Zone II consists of residential use. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they could be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Storm water** – Catch basins transport storm water from roadways and adjacent properties to the ground. As flowing storm water travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

(Continued on page 6)

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Commercial				
Bus and Truck Terminals	6	H	318	Spills, leaks, or improper handling of fuels and maintenance chemicals
Golf Courses	1	M	318	Over-application or improper handling of fertilizers or pesticides
Railroad Tracks and Yards	1	H	318	Herbicides: over-application or improper handling; fuel storage, transported chemicals, and maintenance chemicals: leaks or spills
Fuel Oil Storage (at residences)	Numerous	M	318	Fuel oil: spills, leaks, or improper handling
Lawn Care/ Gardening	Numerous	M	318	Pesticides: over-application or improper storage and disposal
Septic Systems/ Cesspools	Several	M	318	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous				
Aboveground Storage Tanks	2	M	318	Materials stored in tanks: spills, leaks, or improper handling
Composting Facilities	1	L	318	Storage and improper handling of organic material, animal waste, and runoff
Large Quantity Hazardous Waste Generators	5	H	318	Spills, leaks, or improper handling or storage of hazardous materials and waste
NPDES Locations	1	L	318	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	8	----	318	Oil or hazardous materials and waste: spills, leaks, or improper handling or storage
Road and Maintenance Depots	2	M	318	Spills, leaks, or improper handling or storage of de-icing materials, automotive fluids, fuel storage, and other chemicals
Small Quantity Hazardous Waste Generators	7	M	318	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Numerous/ Several	L	318	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way Type: <u>electric</u>	2	L	318	Construction and corridor maintenance, over-application or improper handling of herbicides

Activities	Quantity	Threat *	Zone II ID#	Potential Source of Contamination*
Miscellaneous				
Transportation Corridors	1	M	318	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	13	H	318	Spills, leaks, or improper handling of stored materials
Utility Substation Transformers	1	L	318	Spills, leaks, or improper handling of chemicals and other materials including PCBs
Very Small Quantity Hazardous Waste Generators	8	L	318	Hazardous materials and waste: spills, leaks, or improper handling or storage
Waste Treatment Plant	1	M	318	Improper handling or storage of treatment chemicals or equipment maintenance materials; improper management of wastewater
Water Supply Protection Area % that is Sewered = 99.9% in Reading				
Notes:				
1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.				
2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.				
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.				
THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.				

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for storm water management and pollution controls.

6. Transportation Corridors - Route 93 and several heavily traveled local roads run throughout the Zone II. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by storm water and wash in to catch basins.

Transportation Corridor Recommendations:

- ✓ Identify storm water drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge storm water outside of the Zone II.
- ✓ Work with each town and the Massachusetts Highway Department to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Work with local and State emergency response teams to ensure that any spills within the Zone II can be effectively contained.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with local officials to investigate mapping options such as those in the upcoming Phase II Storm water Rule requiring some communities to complete storm water mapping.

7. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0000518, 3-0000625, 3-0000692, 3-0002363, 3-0002584, 3-0002804, 3-0013565 and 3-0017390. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

8. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Update the Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan".

Other land uses and activities within the Zone II that may be potential contaminant sources are included in Table 2. Refer to Appendix A for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

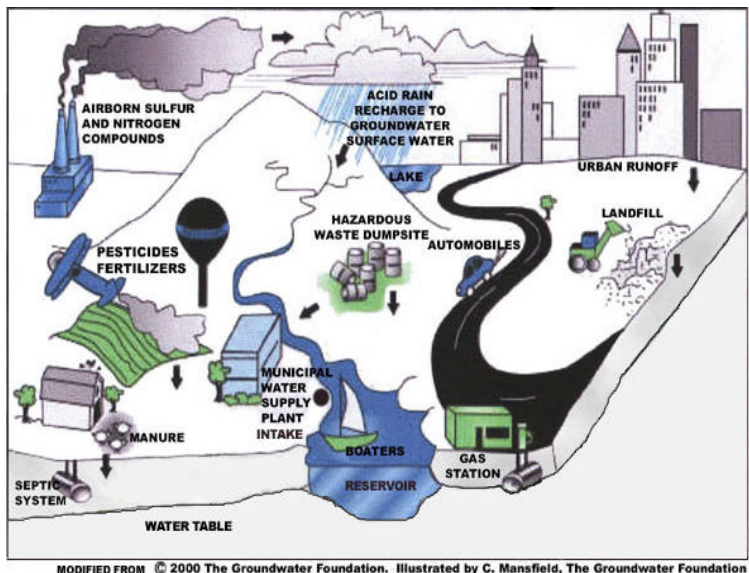


Figure 1: Sample watershed with examples of potential sources of contamination

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier and Town are commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Requesting funding to hire a consultant to determine options available to contain storm drains adjacent to wells along Route 93 in the event of a spill.
- Holding a Household Hazardous Waste Collection Day two times per year.
- Adopting local land use controls, and pursuing the adoption of a floor drain regulation.
- Participating in the Public Involvement Plan (PIP), which is a citizens' group in North Reading that keeps information about oil and hazardous material contamination sites located in North Reading up to date.
- Controlling land in Reading along the Ipswich River that is located in the Zone II, and purchasing an additional 8.64 acres on Mill Street known as Marion Woods.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Continue to inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the storm water drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Update Wellhead Protection Plan.

Resources for Drinking Water Source Protection:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

Conclusions:

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES (for all except Well #13 and Well #15)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Well #13 and Well #15)	Monitor non-water supply activities in Zone I, and investigate options for reducing the risk of contamination from these activities.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas. Pay special attention to fenced areas, lighting, and signs of forced entry into well houses and pump stations.
Are water supply-related activities the only activities within the Zone I?	YES (for all except Well #13 and Well #15)	Continue monitoring for non-water supply activities in Zone Is.
	NO (Well #13 and Well #15)	Monitor non-water supply activities in Zone I, and investigate options for removing these activities, or reducing the risk of contamination from these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	Work with the Board of Health, Planning Board and Board of Selectmen to review the existing source protection bylaw to determine if it meets land use controls required by 310 CMR 22.21(2), and to adopt a floor drain regulation. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	SOME	Work with the town of Wilmington to include Reading's Zone II in Wilmington's wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	YES	Update wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	PARTIAL	Currently, there is a water & sewer advisory committee. To have a well rounded committee, include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Inspections of facilities have been done for hazardous materials. Coordinate efforts with the Board of Health and Fire Department to continue inspections. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc .
Does the PWS provide wellhead protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN READING'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
32694	MA DEPARTMENT OF PUBLIC WORKS	CAUSEWAY RD	READING	HANDLR	SMALL QUANTITY GENERATOR
32694	MA HIGHWAY READING	CAUSEWAY RD	READING	FULDSP	FUEL DISPENSER
317431	AGFA CORP	55 CONCORD STREET	NORTH READING	HANDLER	LARGE QUANTITY GENERATOR
317431	AGFA CORP	55 CONCORD STREET	NORTH READING	HANDLER	LARGE QUANTITY GENERATOR
251722	BARD MEDISYSTEMS	87 CONCORD ST	NORTH READING	DISCHARGE	BELOW IWW REGULATED THRESHOLDS
251722	BARD MEDISYSTEMS	87 CONCORD ST	NORTH READING	HANDLER	BELOW HW REGULATED THRESHOLDS
251722	BARD MEDISYSYSTEMS	87 CONCORD ST	NORTH READING	TURA REPORTER	BELOW TUR REGULATED THRESHOLDS
300381	BOBCAT OF BOSTON INC	20 CONCORD STREET	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR
300381	BOBCAT OF BOSTON INC	20 CONCORD STREET	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
300381	BOBCAT OF BOSTON INC	20 CONCORD ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
29369	CENTRE TRUCKING SERVICES INC	81 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR
134191	DYAR SALES & MACHINERY CO	75 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR
134191	DYAR SALES & MACHINERY CO	75 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
121254	LILY TRUCK LEASING	84 CONCORD ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR
131087	MSM INDUSTRIES INC	60 CONCORD ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR
131087	MSM INDUSTRIES INC	60 CONCORD ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132775	NEW ENGLAND MOTOR FREIGHT INC	90 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR
132775	NEW ENGLAND MOTOR FREIGHT INC	90 CONCORD ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
226966	PACETTI CORPORATION	4 HALLBERG PARK	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR
321780	TERADYNE INC	500 RIVER PARK	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR
319070	VERIZON MASSACHUSETTS	74 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
319070	VERIZON MASSACHUSETTS	74 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR
333802	WILLIAMS AND PARTNERS	66 CONCORD STREET	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR
131268	AMETEK AEROSPACE PRODUCTS INC	50 FORDHAM RD	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR
131268	AMETEK AEROSPACE PRODUCTS INC	50 FORDHAM RD	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
131268	AMETEK AEROSPACE PRODUCTS INC	50 FORDHAM ROAD	WILMINGTON	SURFACE WATER FACILITY	INDUSTRIAL WASTE WATER SURFACE WATER MINOR
357200	AZORES CORP	260 FORDHAM RD	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR
26009	DUPONT EI DENEMOURS & CO INC.	1 CORNELL PLACE	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR
32345	FEDERAL EXPRESS CORP	10 CORNELL PLACE	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR
32345	FEDERAL EXPRESS CORP	10 CORNELL PLACE	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR - WASTE ONLY
323173	FISHMAN TRANSDUCERS	340D FORDHAM RD	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR
323173	FISHMAN TRANSDUCERS	340D FORDHAM RD	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
191962	GETOV MACHINE INC	150 WEST STREET	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR
191962	GETOV MACHINE INC	150 WEST STREET	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
215608	MARTIN MARIETTA CORP	50 FORDHAM RD	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR
363566	PACIFIC SCIENTIFIC CORPORATION	110 FORDHAM RD	WILMINGTON	PLANT	BELOW AQ REGULATED THRESHOLDS
357315	TELEPHOTONICS	100 FORDHAM RD	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR
357315	TELEPHOTONICS	100 FORDHAM RD	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

UNDERGROUND STORAGE TANKS WITHIN READING'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
LOUANIS WATER TREATMENT PLANT	STROUT AVE	READING	MUNICIPAL	4000	FUEL OIL
MASS DPW MAINT DEPOT	CAUSEWAY RD	READING	STATE MAINTENANCE DEPOT	6000	GASOLINE
MASS DPW MAINT DEPOT	CAUSEWAY RD	READING	STATE MAINTENANCE DEPOT	6000	DIESEL
BOBCAT OF BOSTON INC	20 CONCORD ST	NORTH READING	VEHICLE DEALER	3000	GASOLINE
LILY TRUCK LEASING CORP	84 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL
LILY TRUCK LEASING CORP	84 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	10000	DIESEL
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	8000	WASTE OIL
ROADWAY EXPRESS INC	95 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	8000	DIESEL
ROADWAY EXPRESS INC	95 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	8000	DIESEL
J A MIARA TRANSPORATION	140 WEST ST	WILMINGTON	TRUCK/TRANSPORT	10000	DIESEL
J A MIARA TRANSPORATION	140 WEST ST	WILMINGTON	TRUCK/TRANSPORT	4000	GASOLINE

For more information on underground storage tanks, visit the massachusetts department of fire services web site: <http://www.state.ma.us/dfs/ust/usthome.htm>

Note: this appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Reading Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0002804	5 Hallberg Park	North Reading	
3-0000692	60 Concord Street	North Reading	
3-0002363	95 Concord Street	North Reading	Oil
3-0002584	70 Concord Street	North Reading	
3-0017390	80 Concord Street	North Reading	Hazardous Material
3-0013565	Causeway Street/ MA Highway Department	Reading	Oil And Hazardous Material
3-0000625	I-93 Lowell Street	Wilmington	
3-0000518	50 Fordham Road	Wilmington	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Rockport Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Rockport Water Department
<i>PWS Address</i>	Town Office Building
<i>City/Town</i>	Rockport, Massachusetts 01966
<i>PWS ID Number</i>	3252000
<i>Local Contact</i>	John Tomasz
<i>Phone Number</i>	(978) 546-3525

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

Groundwater Sources

<i>Well Name</i>	<i>Zone II #:</i>	<i>Source ID#</i>	<i>Susceptibility:</i>
Millbrook Tubular Replacement Wellfield	531	3252000-02G	High

Surface Water Sources

<i>Source Name</i>	<i>Source ID#</i>	<i>Susceptibility:</i>
Cape Pond	3252000-01S	High
Carlson Quarry	3252000-02S	Medium
Flat Ledge Quarry	3252000-06S	Medium

The wellfield for the Rockport Water Department consists of three separate wells that are manifolded together and individually pumped. Each well has a Zone I radius of 250 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The reservoirs for the Rockport Water Department are located within two separate water supply protection areas, of which both areas lie exclusively within the Town of Rockport. Rockport also has four sources that are used on an emergency basis.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone II and Zone Cs for Rockport's sources are primarily a mixture of forest, residential, and wetlands, and open land, with a small portion consisting of commercial and waste disposal land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

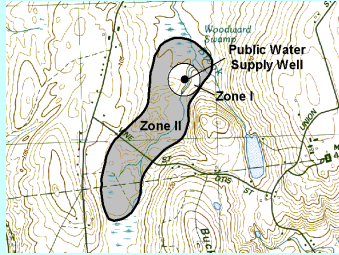
Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Activities in Zone A
3. Residential Land Uses
4. Comprehensive Wellhead Protection Planning

The ranking of susceptibility to contamination for the Millbrook Wellfield Zone II and Cape Pond Zone C is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2. The ranking of susceptibility to contamination for the Carlson Quarry Zone C, and the Flat Ledge Quarry Zone C is medium, based on the presence of at least one medium threat land use within the water supply protection areas, as seen in Table 2.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



1. Activities in Zone I – The Zone I for the wellfield is a 250 foot radius around each well. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The following non-water supply activities occur in the Zone Is of the system wells:

Wellfield - Railroad tracks associated with the commuter rail run through the northwest portion of the Zone I. Rights-of-way are a potential source of contamination because of the possibility of chemical releases during track maintenance or the over-application or improper handling of herbicides used during rights-of-way maintenance.

Zone I Recommendations:

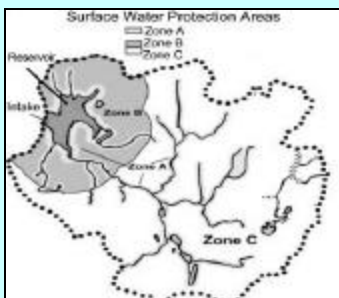
- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.

- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ Work with the local Conservation Commission to make sure the wetland/stream resource areas are properly delineated in the field prior to the application of pesticide and that the supplier review the Yearly Operating Plan (YOP) from the railroad. These plans are approved directly by the Department of Food and Agriculture, with copies being sent to the local Conservation Commission.

2. Activities in Zone A - Existing and future land use activities which may have an impact on surface water sources include: public and private recreational activities; untreated stormwater runoff; domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and un-permitted and unauthorized activities. Wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. The following activities occur in the Zone A of the system's reservoirs:

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Carlson Quarry and Flat Ledge Quarry - There are local roads and numerous homes within the Zone A of both quarry's.

Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.

3. Residential Land Uses – Approximately 25% of the combined Zone II and Zone Cs consist of residential areas. A portion of the Zone II for the wellfield is served by municipal sewerage, with the remaining homes having on-site septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

4. Protection Planning – Currently, Rockport has some water supply protection controls that are implemented through a bylaw. Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir. A Water Resource Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead and Surface Water Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan" and "Developing A Local Surface Water Supply Protection Plan".
- ✓ Coordinate efforts with local officials to compare local wellhead and surface water protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2) and Surface Water Supply Protection Regulations 310 CMR 22.20B and 310 CMR 22.20C. If there are no local controls or they do not meet the current regulations, adopt controls that meet 310 CMR 22.21(2), 310 CMR 22.20B and 310 CMR 22.20C. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floordrains, be sure to include floordrain controls that meet 310 CMR 22.21(2).

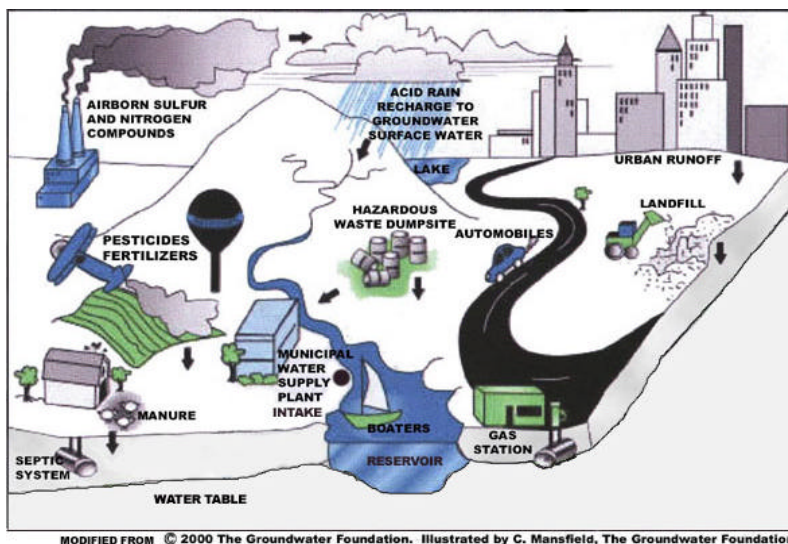


Figure 1: Sample watershed with examples of potential sources of contamination

Other land uses and activities within the Zone I and Zone Cs that are potential sources of contamination are included in Table 2. Refer to Appendix A for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II Number	Zone C Source ID	Potential Contaminant Sources*
Commercial					
Service Stations/ Auto Repair Shops	1	H	531		Spills, leaks, or improper handling of automotive fluids, and solvents
Printer And Blueprint Shops	1	M	531		Spills, leaks, or improper handling or storage of printing inks and chemicals
Residential					
Fuel Oil Storage (at residences)	Numerous	M	531	02S, 06S	Spills, leaks, or improper handling of fuel oil
Lawn Care/ Gardening	Numerous	M	531	02S, 06S	Over-application or improper storage and disposal of pesticides
Septic Systems/ Cesspools	Numerous	M	531	02S, 06S	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous					
Underground Storage Tanks	1	H		01S	Spills, leaks, or improper handling of stored materials
Water Treatment Sludge Lagoon	1	M		01S	Improper management of sludge and wastewater

Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system's Zone II and Zone Cs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Forming a committee to address source protection issues related to the Millbrook Wellfield source protection area
- Applying in 2001 for a Source Protection Grant through DEP
- Adopting local land use controls for wellhead and surface water protection.

Source Protection Recommendations:

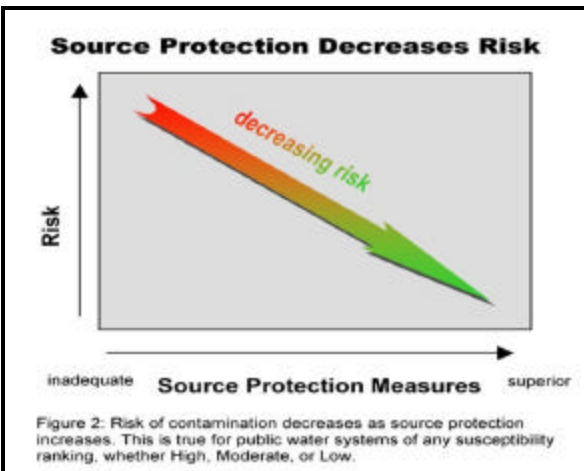
To better protect the sources for the future:

- ✓ Inspect the Zone I and Zone A regularly, and when feasible, remove any non-water supply activities.
 - ✓ Educate residents on ways they can help you to protect drinking water sources.
 - ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and Zone C and to cooperate on responding to spills or accidents.
 - ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
 - ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
 - ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead and Surface Water Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A. DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).



Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses.

Top 5 Reasons to Develop a Local Wellhead and Surface Water Protection Plan

- 1 Reduces Risk to Human Health
- 2 Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- 3 Supports municipal bylaws, making them less likely to be challenged
- 4 Ensures clean drinking water supplies for future generations
- 5 Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and/or Zone A?	YES (Millbrook Tubular Wellfield, Cape Pond)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Carlson Quarry, Flat Ledge Quarry)	To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone I and Zone A requirements. Investigate options for gaining ownership or control of the Zone A.
Are the Zone I and Zone A posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone I and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I and Zone A?	YES (Cape Pond)	Continue monitoring for non-water supply activities in Zone As.
	NO (Millbrook Tubular Wellfield, Carlson Quarry, Flat Ledge Quarry)	Monitor prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)?	POSSIBLY	Work with the Planning Board and the Selectmen to review existing bylaws to determine if it meets land use controls required by 310 CMR 22.21(2) and 310 CMR 22.20B & C. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	N/A	
Planning		
Does the PWS have a local surface water and wellhead protection plan?	PARTIAL	Develop a wellhead and surface water supply protection plan to include all sources. Follow "Developing a Local Wellhead Protection Plan" and "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed and wellhead protection committee?	PARTIAL	A committee exists for the Millbrook Wellfield source protection area. To have a well rounded committee, include representatives from citizens' groups, neighboring communities, and the business community, and expand interests to all sources.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Floor drain inspection was conducted in conjunction with DEP. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II and Zone C.



Massachusetts Department of Environmental Protection
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for
Rowley Water Department

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Table 1: Public Water System Information

<i>PWS Name</i>	Rowley Water Department
<i>PWS Address</i>	39 Central Street
<i>City/Town</i>	Rowley
<i>PWS ID Number</i>	3254000
<i>Local Contact</i>	John Rezza - Water Superintendent
<i>Phone Number</i>	978-948-2640

Introduction

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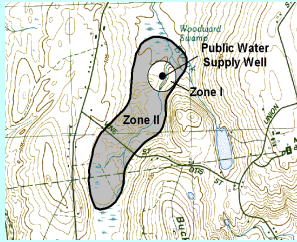
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4. Additional Resources Available for Source Protection
5. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 415

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Haverhill St. GP Well – Sta. 2	3254000-02G

Zone II #: 420

Susceptibility:

<i>Well Names</i>	<i>Source IDs</i>
Boxford Rd GP Well – Sta. 3	3254000-03G
Pingree Farm Road Wellfield	Not yet assigned

The wells for the Rowley Water Department are located within two separate water supply protection areas, with portions of the Zone II for the Haverhill Street Well extending into Ipswich, and portions for the Boxford Road Well and Pingree Farm Road Wellfield extending into the towns of Boxford, Georgetown, and Ipswich. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

Rowley is in the process of developing the Pingree Farm Road Wellfield. A condition for final approval of this well is that the Town of Rowley must adopt land use controls that comply with DEP Wellhead Protection Controls that meet 310 CMR 22.21(2)

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Discussion of Land Uses in the Protection Areas

The Zone IIs for Rowley are predominantly forested and residential, with a mixture of commercial, light industry, and recreational land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key issues include:

1. Inappropriate Activities in Zone I
2. Agricultural Activities
3. Local Businesses
4. Oil or Hazardous Material Contamination Sites
5. Residential Land Uses and Activities
6. Transportation Corridor
7. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for Rowley is high, based on the presence of at least one high threat land use within each Zone II, as seen in Table 2.

1. Inappropriate Activities in Zone I – Some older wells may not meet the Zone I requirement. In many cases the land is owned by municipalities, and is used for recreational activities.

Inappropriate Activities in Zone I continued:

Among the significant threats to water supplies are septic systems, pesticides and fertilizers, storm water runoff and underground storage tanks which often accompany these land uses. Not owning or controlling the Zone I of a groundwater source puts drinking water supplies at significantly increased risk of contamination.

The “Drinking Water Regulations of Massachusetts” 310 CMR 22.21(3)(b) states that all suppliers of water shall acquire ownership or control of sufficient land around wells used as sources of drinking water to protect the water from contamination. This requirement shall generally be deemed to have been met if all land within the Zone I is under ownership or control of the supplier of water.

Inappropriate Activities in Zone I - Recommendations

- ✓ **Ownership or Control – Haverhill Street Well:** Request that the Town of Rowley discontinue the use of the ball field in the Zone I of the Haverhill Street Well. If outright ownership is not an immediate option, attempt to negotiate a Conservation Restriction with the Town, and private property owner for the purpose of providing and promoting exclusive and perpetual protection of water supply and water quality.
- ✓ **Boxford Road Well and Pingree Farm Road Wellfield:** Monitor progress for adopting of the Conservation Restriction that was approved at the November 5, 2001 Town Meeting.
- ✓ **Agreement Options** - Until land is available, attempt to obtain a *Memorandum of Understanding* and *Right of First Refusal*.

Memorandum of Understanding (MOU) is an agreement between the landowner and public water supplier in which the landowner agrees not to engage in specific threatening activities. The MOU should be specific to the land use or activity. For instance, if the land is residential with a septic system the owner could agree not to place chemicals, petroleum products, or other hazardous or toxic substances, including septic system cleaners into the septic system, and that the system will be pumped at a specific frequency. Understanding how and activity threatens drinking water quality is an important component of developing an effective MOU.

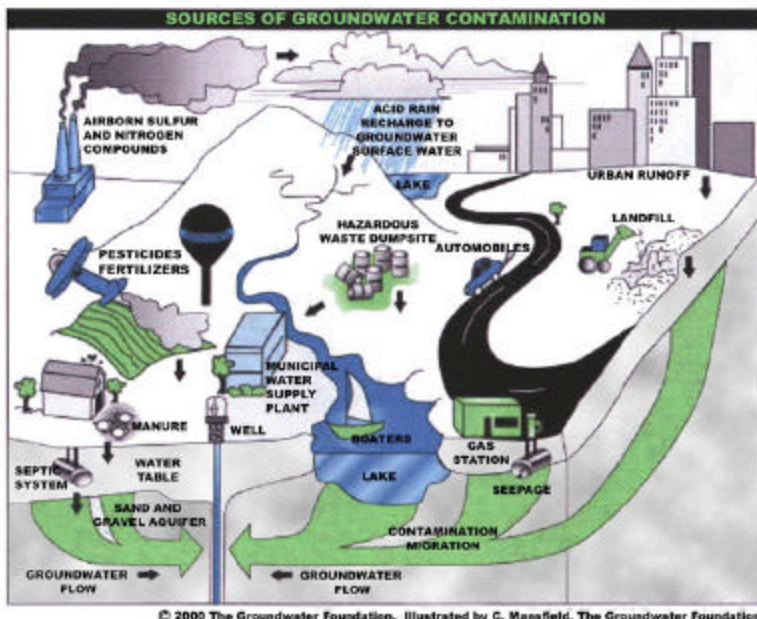
Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

2. Agricultural Activities - Pesticides used to control weeds, insects and plant diseases have the potential to contaminate groundwater which is used as a drinking water source. Improper disposal, accidental spills, excessive or inappropriate use, misapplication, are all ways in which pesticides can contaminate groundwater supplies.



Fertilizers used to promote plant growth also have the potential to contaminate water sources if applied improperly. The principle components of fertilizer are nitrogen, phosphorus and potassium (N-P-K). Nitrogen is the main nutrient for new, green growth, phosphorus promotes root development and potassium improves the overall health of plants. Excessive amounts of nitrogen and phosphorus are the nutrients most likely to adversely affect water quality.

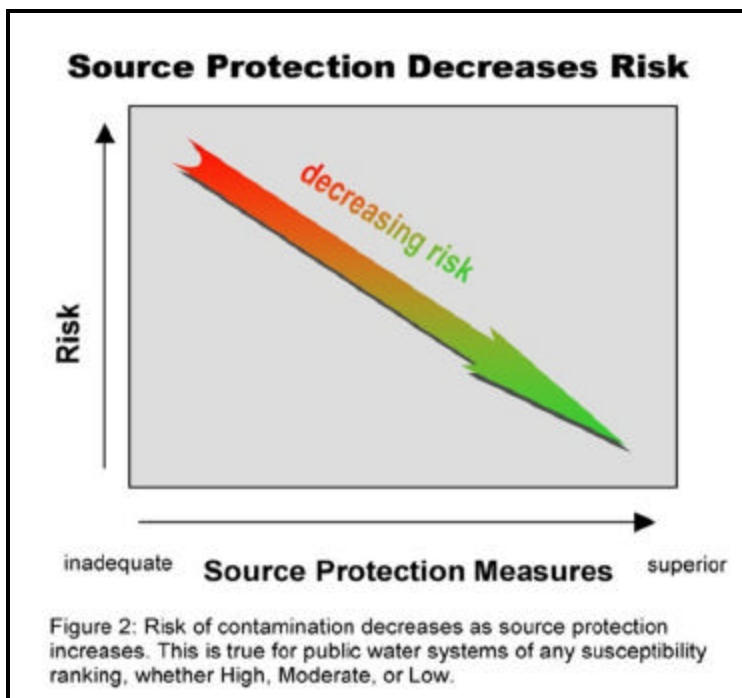
Animal waste from barnyards, manure pits and field application can pollute ground and surface water when not contained or applied properly. Manure leachate can flow overland to a watercourse and its components can move down through soil to enter groundwater and ultimately drinking water wells. The nutrients in manure that boost plant growth can be a pollution hazard if the manure is improperly handled.

Agricultural Activities Recommendations - Pesticides

- ✓ **Integrated Pest Management** - Integrated Pest Management (IPM) is the use of all means of pest control (chemical and non-chemical) in a compatible fashion to reduce crop losses. Pesticides are the last line of defense and are used only when pest levels are causing sufficient damage to offset the expense of the application. Encourage landowners to participate in IPM Certification: *Partners with Nature*. This program is a voluntary, collaborative effort of the Department of Food and Agriculture (DFA), the UMass Extension, and the USDA's Farm Service Agency which recognizes growers who practice IPM. This program certifies the practice by which certain crops are grown. Growers who follow specific IPM guidelines, and complete a verification process become IPM-certified. Participants are licensed to display the *Partners with Nature* trademark, and receive educational and marketing materials for public distribution and display.
For more information on this program contact the Massachusetts Department of Food and Agriculture (DFA), 251 Causeway Street, Boston, MA 02114. Telephone: 617- 626-1700. Website: www.massdfa.org
- ✓ **Storage and Handling** - Safety is the key element in pesticide storage. The safest approach to any pesticide problem is to limit the amounts and types of pesticides stored. The amounts and types of pesticides stored should be maintained at the level that is immediately required and should not be stored beyond immediate needs. For additional information on the proper handling and storage of pesticides, refer landowners to Massachusetts Department of Food and Agriculture (DFA) Pesticide Bureau Publication "Recommended Practices For Mixing, Loading and Storage of Pesticides", which can be obtained by contacting the Massachusetts Department of Food and Agriculture (DFA), 251 Causeway Street, Boston, MA 02114. Telephone: 617- 626-1700. Website: www.massdfa.org
- ✓ **Proper Pesticide Application** - If pesticides must be used, proper handling and application according to the EPA-approved label are essential. Select an effective pesticide for the intended use and, where possible, use products that pose lower human and environmental risks (i.e., low-persistence). Read the pesticide label for guidance on required setbacks from water, agricultural drainage wells and tile networks, buildings, wetlands, wildlife habitats, and other sensitive areas where applications are prohibited. Additional information on pesticide application may be obtained from the United States Office of Water EPA Source Water Protection Practices Bulletin "Managing Large-Scale Application of Pesticides to Prevent Contamination of Drinking Water "
- ✓ **Education** - Recommend that all persons involved in the application of pesticides maintain a pesticide license or certification with the Massachusetts Department of Food and Agriculture including all applicable training and re-certification courses.

Agricultural Activities Recommendations - Fertilizer

- ✓ **Application** - Recommend the use of a slow-release nitrogen fertilizer. There are two basic forms of nitrogen contained in fertilizer products: fast-release or Water Soluble Nitrogen (WSN), and slow-release or Water Insoluble Nitrogen (WIN). Slow-release fertilizers provide a more controlled release of nitrogen thereby limiting the amount of fertilizer leaching into groundwater.



- ✓ **Storage** - Properly store fertilizer. Unused fertilizer should be removed from the spreader and returned to the original bag or container for future use. Store unused fertilizer in a dry place away from any water source. If stored fertilizer gets wet you not only lose nutrient value, there is potential for nitrates to leach into water sources.
- ✓ **Vegetated Buffers** - Encourage the use of vegetated buffer strips. Leave a strip of unfertilized grasses or natural vegetation near any water body. This helps against erosion and produces a trap for unwanted nutrients.

For additional information on fertilizer use, refer to Massachusetts Department of Food and Agriculture (DFA) Pesticide Bureau Publication "Protecting Water Sources from Fertilizer" and the United States Office of Water EPA Source Water Protection Practices Bulletin "Managing Agricultural Fertilizer Application to Prevent Contamination of Drinking Water "

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix 2: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Agricultural				
Fertilizer Storage or Use	1	M	420	Fertilizers: spills, leaks, or improper handling or storage
Manure Storage or Spreading	3	H	415	Manure (microbial contaminants): improper handling
Pesticide Storage or Use	1	H	420	Pesticides: spills, leaks, or improper handling or storage
Commercial				
Gas Stations	1	H	415	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/Auto Repair Shops	1	H	415	Automotive fluids, and solvents: spills, leaks, or improper handling
Bus and Truck Terminals	1	H	415	Fuels and maintenance chemicals: spills, leaks, or improper handling
Junk Yards and Salvage Yards	1	H	415	Spills, leaks, or improper handling of automotive chemicals, wastes, and batteries
Sand And Gravel Mining/Washing	1	M	415	Heavy equipment, fuel storage, clandestine dumping: spills or leaks
Industrial				
Hazardous Materials Storage	1	H	415	Hazardous materials: spills, leaks, or improper handling or storage
Residential				
Fuel Oil Storage (at residences)	Numerous	M	415, 420	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	415, 420	Pesticides: over-application or improper storage and disposal
Septic Systems/Cesspools	Numerous	M	415, 420	Household hazardous waste: improper disposal, and microbial contaminants
Miscellaneous				
Aboveground Storage Tanks	Several	M	415, 420	Materials stored in tanks: spills, leaks, or improper handling
Oil or Hazardous Material Sites	3	----	415, 420	Oil or hazardous materials and waste: spills, leaks, or improper handling or storage

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination
Miscellaneous				
Stormwater Drains/ Retention\Basins	Numerous	L	415, 420	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way - Type: <u>electric</u>	1	L	415, 420	Construction and corridor maintenance, over-application or improper handling of pesticides
Transportation Corridors	1	M	415	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	5	H	415	Spills, leaks, or improper handling stored materials
Very Small Quantity Hazardous Waste Generator	2	L	415	Hazardous materials and waste: spills, leaks, or improper handling or storage of hazardous materials or waste storage
Wastewater Treatment Plant/Collection Facility/ Lagoon	1	M	415	Treatment chemicals or equipment maintenance materials: improper handling or storage of treatment chemicals or equipment maintenance materials; improper management of wastewater
Water Supply Protection Area % that is Sewered = 0%				
Notes:				
1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.				
2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.				
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.				
* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.				

Agricultural Activities Recommendations - Manure Storage or Spreading

- ✓ **Best Management Practices** - Work with the Board of Health to develop Best Management Practices that are the most effective, practical means of preventing or reducing pollution from manure storage and spreading. Best Management Practices include properly storing manure, composting, establishing vegetative buffers, keeping animals out of streams, selecting pasture sites carefully, and safely storing commonly used chemicals found in barns.
- ✓ **Education** - Develop an educational outreach program that provides horse owners with best management practices.

3. Local Businesses – Because many small businesses and industries use hazardous materials, produce hazardous waste products, and often store large quantities of petroleum products, there is the potential for degrading water quality. Educating the business community about drinking water protection, and encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

Local Businesses - Recommendations:

- ✓ **Hazardous Materials Program Best Management Practices** - Support the development and implementation of a hazardous materials program that includes a Bylaw or Health Regulation. 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. See DEP's website for additional information on developing a program for hazardous materials management at <http://www.state.ma.us/dep/brp/dws/files/hazmat.doc>.

- ✓ **Inspection Program** – Coordinate efforts with local officials in the development and implementation of an Inspection Program to prevent hazardous substances from entering water supplies. Inspections target facilities that generate, use, store, or disposal of hazardous/toxic materials. Programs can also include floor drain and underground storage tanks inspections. Local inspection programs often provide educational material and technical assistance on Best Management Practices. Building Inspectors are often involved in local inspection programs.
- ✓ **Hazardous Materials Best Management Practices** - Work with local businesses to encourage training on proper hazardous material use, disposal, and emergency response. Refer to the attached list of resources for more information on hazardous material BMPs.
- ✓ **Storage Tanks** - Support your local fire department in upgrading all above and below ground oil/hazardous material storage tanks in order to meet current construction standards. Funding for replacing underground storage tanks is available through the MA Department of Revenue. For more information, refer to http://www.dor.state.ma.us/ust/ust_home.htm

What are "BMPs?"

Best Management Practices are structural (i.e. oil & grease trap catch basins), nonstructural (i.e. hazardous waste collection days) or managerial measures that are used to protect and improve surface water and groundwater quality.

- ✓ **Register Hazardous Waste Generators** - Work with local businesses to register with DEP those facilities that are unregistered generators of hazardous waste or waste oil.
- ✓ **Monitor Land Uses** - Work with the Selectmen, Board of Health and Planning Board to monitor land uses within and proximal to the Zone II. Refer to the Wellhead Protection Plan guidance and model bylaws at <http://www.state.ma.us/dep/brp/dws/files/whplan.doc> for types of activities that should be prohibited and managed in the vicinity of public or private water supplies.
- ✓ **Lawn care and Landscaping** - Encourage local businesses to incorporate Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides. For more information, refer to http://www.massdfa.org/pesticides/publications/IPM_kit_for_bldg_mgrs.pdf

4. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0003484, 3-0016922, and 3-0017699.

For more information refer to the attached map, Appendix C, and the Bureau of Waste Site Cleanup’s website at <http://www.state.ma.us/dep/bwsc/sitelist.htm>

Oil or Hazardous Material Contamination Sites – Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or hazardous material contamination sites.

5. Residential Land Use - If managed improperly, household hazardous waste, septic systems, lawn care, and pet waste can all contribute to groundwater contamination. Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances.

If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Fertilizers and pesticides contain hazardous chemicals that can travel through the soil and contaminate ground water if over-applied. Pet waste may contain bacteria, parasites, or viruses that pose a health risk. Water supplies may also be threatened from improper use or disposal of chemical products used in homes. Educating residents on proper disposal of these materials is the best defense against pollution.

Residential Recommendations - Household Hazardous Waste:

- ✓ **Proper Disposal** - Educate residents on the problem of disposing of hazardous materials in landfills, septic systems, wastewater treatment plants, storm drains, and on the ground. Encourage residents to participate in the Town of Rowley’s annual Household Hazardous Waste Collection Day.
- ✓ **Alternative Products** - Provide residents with information on options that are available to substitute less hazardous substances for many products used in the home.

Residential Recommendations - Septic systems:

- ✓ **System Care** - Educate residents on private septic systems about using cleaning compounds that are safe for the septic system, on proper disposal practices, i.e. only sanitary waste in the septic system. Information on septic systems can be found at Massachusetts Department of Environmental Protections website <http://www.state.ma.us/dep/brp/files/yoursyst.htm>.

- ✓ **Proper Disposal** - Residents should dispose of used oil, antifreeze, paints, and other household chemicals properly - not in septic systems.

Residential Recommendations - Lawn Care and Landscaping:

- ✓ **Environmentally Sound Lawn Care** - Provide educational materials to residents about the proper application of pesticides or fertilizers. Landscape with native grasses, native flowering plants and trees and shrubs. Once established, native plants require less water and may not require fertilizer, herbicide or pesticide use. Encourage the use of native plants and landscaping by establishing a demonstration area at a town facility. Information on environmentally sound lawn care practices can be obtained from the Massachusetts Department of Food and Agriculture Pesticide Bureau’s website at <http://www.massdfa.org>.

Residential Recommendations - Heating Oil Tanks:

- ✓ **Aboveground Storage Tanks** - Provide educational materials to residents regarding the proper storage of liquid petroleum products in aboveground storage tanks. The Department requires all Wellhead protection zoning and non zoning controls to prohibit the siting of liquid petroleum products storage in Zone II unless such storage is aboveground, on an impervious surface and either in a container or in an aboveground tank within a building, or in an area that has a containment system designed and operated to hold either 10 percent of the total possible storage capacity of all containers, or 110% of the largest container storage capacity whichever is greater.

Consult with the local fire department for any additional local code requirements regarding aboveground storage tanks. A fact sheet on basement or outside oil tank can be obtained from the Barnstable County Department of Health And Environment at <http://www.CapeCod.net/bcdhe/oil/oil.htm>.

7. Transportation Corridor - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. De-icing salt washes off into storm drains or onto adjacent ground. In addition, roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased groundwater monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Transportation Corridor - Recommendations:

- ✓ **Design and Best Management Practices** – Contact the Massachusetts Highway Department to determine if the stormwater drainage systems along Route 95 conform to structural Best Management Practices (BMPs) to prevent pollution from storm water affecting the water quality of Rowley’s wells. Best management practices reduce or prevent pollution from reaching water bodies and control the quantity/quality of runoff from a site (refer to *Storm Water Management Handbook*, volume 1 and 2 for information on structural BMPs located in attachments).
- ✓ **Emergency Response Plan** - Inform the Massachusetts Highway Department of the location of Rowley’s wells that are in close proximity to Route 95. Provide them with a copy of Rowley’s Emergency Response Plan.

8. Comprehensive Wellhead Protection Planning - Protection planning prevents drinking water contamination by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are numerous resources available to help communities in developing a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ **Develop A Land Acquisition Plan** - Land acquisition projects protect water supplies by limiting the land development potential. Acquisitions can be accomplished by water systems through conservation restrictions, land banking, land purchases and land donations. Sample conservation restrictions are available at: <http://www.state.ma.us/dep/brp/dws/>. Future development of Zone II is a major concern. The Department recommends that the water district acquire Zone II land closest to the Zone I or land that is subject to high-risk development (refer to Developing a local Wellhead Protection Plan).
- ✓ **Local Controls** - Coordinate efforts with local officials in Boxford, Georgetown, and Ipswich to compare existing controls with current MA Wellhead Protection

Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://www.state.ma.us/dep/brp/dws/>.

- ✓ **Inspection Program** - Develop and implement an Inspection Program for facilities that generate, use, store, or dispose of hazardous/toxic materials. Local Board of Health and Building Inspectors working on inspections often include floor drain and underground storage tanks. Local inspection programs can provide valuable technical assistance on Best Management Practices.

Other land uses and activities that may be potential contaminant sources include gas stations, stormdrains, and junk yards. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential contaminant sources is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential contaminant sources are identified, specific recommendations like those below should be used to better protect the Rowley wells.

Section 3: Source Water Protection

Implementing source protection measures and Best Management Practices (BMPs) will reduce the Rowley Water Department System's susceptibility to contamination. Additional source protection recommendations are listed in Table 3 and the Key Issues above.

Rowley Water Department is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- ❖ Working towards adopting land use controls that meet DEP's Drinking Water Regulations
- ❖ Purchasing 80 acres in the Zone II of the Boxford Road Well and proposed Pingree Farm Road Wellfield, and for continuing to purchase land for source protection purposes..

Appendix 1 includes specific recommendations for each of the following:

➤ **Partner with Local Businesses:**

Since many small businesses and industries use hazardous materials and produce hazardous waste products, it is essential to educate the business community about drinking water protection. Encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

➤ **Provide Outreach to the Community:**

Public education and community outreach ensure the long-term protection of drinking water supplies. Awareness often generates community cooperation and support. Residents and business owners are more likely to change their behavior if they know where the wellhead protection recharge area is located; what types of land uses and activities pose threats; and how their efforts can enhance protection.

➤ **Plan for the Future:**

One of the most effective means of protecting water supplies is planning, such as the adoption of local controls to protect watersheds and ground water. These controls may include health regulations, general ordinances, and zoning bylaws that prohibit potential sources of contamination from wellhead protection areas.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. These recommendations are only part of your ongoing local drinking water source protection.

Section 4: Additional Resources Available for Source Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

The assessment and protection recommendations in this SWAP report are provided as a tool to spur community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

The Rowley Water Department should supplement this SWAP report with local information on potential sources of contamination and land uses. To aid in the protection of the wells, local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Funding Resources:

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing Water Supply Source Protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. For additional information, please refer to the program fact sheet from this year. Please note: each spring DEP posts a new Request for Response for the Grant program (RFR).

The Aquifer Land Acquisition Program protects both surface and groundwaters used for drinking water purposes. Land acquisition is considered to be the single best way to protect a drinking water supply. Land acquisitions for water supply protection purposes include outright purchases, conservation restrictions, land donations, and interest in land taken by eminent domain. These funds will be available to water suppliers and municipal governments through the process described below. All publicly owned water suppliers, districts, or municipalities are invited to express an interest by submitting a Statement of Need covering any land purchase expected to be made to protect a public water supply that can be completed by June 30, 2002. The Department of Environmental Protection will select respondents of the Draft Statement of Need to submit a completed Final Statement of Need based on DEP land acquisition standard operating procedures, ability to use the funds by June 30, 2002, and other environmental criteria as determined necessary by the Secretary and Commissioner.

For further information on the Aquifer Land Acquisition Program, contact Joseph McNealy, Director of Program Development, Department of Environmental Protection, at (617) 556-1068.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, Aquifer Land Acquisition Program, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm>.

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Section 5: Appendices

1. Protection Recommendations
2. Regulated Facilities within the Water Supply Protection Area
3. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
4. Additional Documents on Source Protection in Rowley

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	NO (Haverhill Street Well)	Investigate options for gaining ownership or control for this source.
	YES (Boxford Road Well & Pingree Farm Road Wellfield)	Currently, the Town of Rowley owns the land surrounding the Boxford Road Well and Pingree Farm Road Wellfield. A request went before Town Meeting on November 5, 2001 to transfer control of the Zone I to the water department. There was a vote to approve a conservation restriction for the Zone I of each well.
Is the Zone I posted with “Public Drinking Water Supply” Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Monitor non-water supply activities in Zone Is, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21 (2)?	NO	Monitor activities in Zone II to assure compliance with local wellhead protection controls.
Do neighboring communities protect the Zone II areas extending into their communities?	Unknown	Request that municipal officials in Boxford, Georgetown, and Ipswich develop land use restrictions that meet 310 CMR 22.21 (2).
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow “Developing a Local Wellhead Protection Plan” available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal “Emergency Response Plan” to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish a committee that includes representatives from citizens’ groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	Currently, the Rowley Water Department and the Rowley Fire Department are coordinating efforts to conduct inspections. The town is encouraged to continue this program, and to include municipal facilities. For more guidance see “Hazardous Materials Management: A Community’s Guide” at www.state.ma.us/dep/brp/dws/files/hazmat.doc .
Does the PWS provide wellhead protection education?	NO	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
	PAUL GETCHELL USED CARS	166R HAVERHILL ST	ROWLEY	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
	OMEGA LABORATORIES	406 HAVERHILL ST	ROWLEY	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
	VETERANS GARAGE	165 NEWBURYPORT TURNPIKE	ROWLEY	FUEL DISPENSER	FUEL DISPENSER

UNDERGROUND STORAGE TANKS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
GSX CORPORATION	103 BOXFORD ROAD	ROWLEY	WASTE DISPOSAL	4000	
GSX CORPORATION	103 BOXFORD ROAD	ROWLEY	WASTE DISPOSAL	4000	
GSX CORPORATION	103 BOXFORD ROAD	ROWLEY	WASTE DISPOSAL	4000	
SCA EASTERN DISPOSAL	103 BOXFORD ROAD	ROWLEY	WASTE DISPOSAL	1000	#4 USED OIL
EASTERN DISPOSAL	103 BOXFORD ROAD	ROWLEY	WASTE DISPOSAL	500	
GSX CORPORATION	103 BOXFORD ROAD	ROWLEY	WASTE DISPOSAL	500	#6 HEATING OIL
GSX CORPORATION	103 BOXFORD ROAD	ROWLEY	WASTE DISPOSAL	500	#5 HEATING OIL
VETERANS MOBIL	165 NEWBURYPORT TURNPIKE	ROWLEY	SERVICE STATION	5000	GASOLINE
VETERANS MOBIL	165 NEWBURYPORT TURNPIKE	ROWLEY	SERVICE STATION	5000	GASOLINE
VETERANS MOBIL	165 NEWBURYPORT TURNPIKE	ROWLEY	SERVICE STATION	4000	GASOLINE
VETERANS MOBIL	165 NEWBURYPORT TURNPIKE	ROWLEY	SERVICE STATION	3000	DIESEL
VETERANS MOBIL	165 NEWBURYPORT TURNPIKE	ROWLEY	SERVICE STATION	5000	DIESEL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Rowley Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0003484	110 Boxford Road	Rowley	Oil
3-0016922	165 Newburyport Turnpike (Route 1)	Rowley	Hazardous Material
3-0017699	165 Newburyport Turnpike (Route 1)	Rowley	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Salem/Beverly Water Supply Board

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Salem/Beverly Water Supply Board
<i>PWS Address</i>	Arlington Street
<i>City/Town</i>	Beverly, Massachusetts 01915
<i>PWS ID Number</i>	3030001
<i>Local Contact</i>	Thomas Knowlton
<i>Phone Number</i>	(978) 922-2521

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

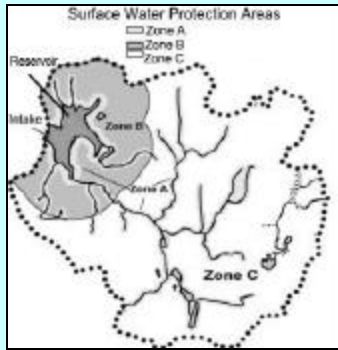
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Emergency Planning Recommendations for Class B River Intakes
4. Source Water Protection
5. Appendices

Section 1: Description of the Water System

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Surface Water Sources

Source Name	Source ID #	Susceptibility
Wenham Lake	3030001-01S	High
Longham Reservoir	3030001-02S	High
Putnamville Reservoir	3030001-03S	High
Ipswich River	3030001-04S	High

The Salem/Beverly Water Supply Board (Salem/Beverly) maintains and operates four public water supply sources. All of Salem/Beverly's water supplies are located within the Ipswich River basin. The reservoirs for Salem/Beverly are located within three separate water supply protection areas, with Wenham Lake (3030001-01S) being in Beverly and Wenham; Longham Reservoir (3030001-02S) is entirely in Wenham; and Putnamville Reservoir (3030001-03S) being entirely in Danvers. The intake for the Ipswich River (3030001-04S) is in Topsfield, with the canal being in Wenham.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Class B Drinking Water Sources

There are twelve Class B drinking water sources on rivers in Massachusetts, eleven in the urbanized northeast and one in the western part of the State. Three of these sources are located on the Ipswich River. The large watersheds and historically urbanized land uses associated with major rivers makes source protection a challenge at the Class B sources.

A Class B water body source such as the Ipswich River does not have Zone A, B and C protection areas, as do Class A water body sources. For the purposes of the SWAP assessments, a 400 foot setback area along the river and all feeder streams has been delineated for Class B water body sources that is referred to as an "Emergency Planning Zone". Land uses and activities within this zone are of particular concern for source protection and emergency planning because of their proximity to the water supply.

River drinking water sources are particularly susceptible to spills and accidental releases from public and private discharges; accidents related to vehicles, railroads, airports, boats; utility easements; fixed site releases at industrial and public facilities; inappropriate use of pesticides and fertilizers; improper disposal of hazardous household waste; and illegal dumping of a variety of substances.

This assessment has been conducted on the watershed area upstream of the Salem/Beverly intake. In addition, DEP has delineated a 400-foot emergency planning zone (shown on the GIS map that accompanies this report) adjacent to the river and its tributaries for the purpose of this assessment.

Glossary

Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 2: Land Uses in the Protection Areas

The watersheds for the Salem/Beverly reservoirs and Ipswich River intake are primarily a mixture of forest and residential use, with a small portion consisting of agricultural, commercial, and industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

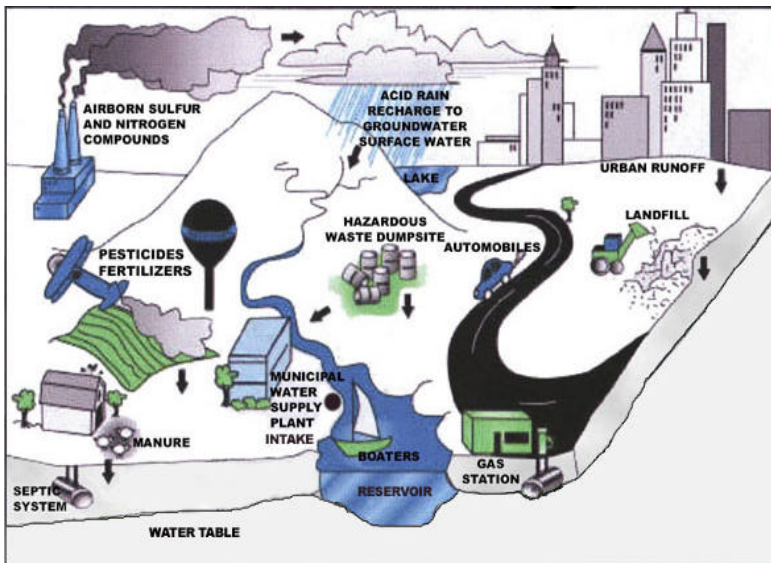
Key Land Uses and Protection Issues include:

1. Activities in Zone A and Emergency Planning Zone
2. Chemical and Hazardous Materials Manufacture, Storage and Use
3. Agricultural Activities
4. Residential Land Uses
5. Transportation Corridors
6. Road and Maintenance Depots
7. Oil or Hazardous Material Contamination Sites
8. Comprehensive Surface Water Protection Planning

The ranking of susceptibility to contamination for Wenham Lake, Longham Reservoir, Putnamville Reservoir, and the Ipswich River watersheds are high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone A and Emergency Planning Zone - A Zone A for a reservoir includes all areas within 400 feet of the reservoir shore line and within 200 feet of either side of all streams and feeder ponds that flow into the reservoir. The Emergency Planning Zone is a 400 foot setback on either side of the river and all tributaries to a Class B river intake. Land use activities within a Zone A

or Emergency Planning Zone may have an impact on surface water sources. Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and, un-permitted and unauthorized activities. Also, wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.



MODIFIED FROM © 2000 The Groundwater Foundation. Illustrated by C. Mansfield, The Groundwater Foundation

Figure 1: Sample watershed with examples of potential sources of contamination

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Class B River Intakes

Class B water sources do not have Zone A, B and C protection areas as the Class A sources do. For the purposes of this report, an "Emergency Planning Zone" has been delineated. The **Emergency Planning Zone** is the land area within 400 feet of both sides of the river including all tributary streams and surface water bodies.

Zone A Recommendations:

Work with communities within the combined watersheds to:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A and Emergency Planning Zone should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.
- ✓ Identify stormwater drains and the drainage system along transportation corridors. Work to better manage stormwater by pre-treating contaminated stormwater and/or redirecting stormwater outside of the Zone A and Emergency Planning Zone.

- ✓ Continue your efforts to protect these areas and to monitor and review activities within the Zone A and Emergency Planning Zone.

2. Chemical and Hazardous Materials Manufacture, Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs). Although many facilities within the watershed use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.
- ✓ Continue monitoring water quality in the Ipswich River.
- ✓ Continue to plan and prepare for spills by communicating with municipalities and facilities in the Ipswich River watershed, and by conducting drills.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

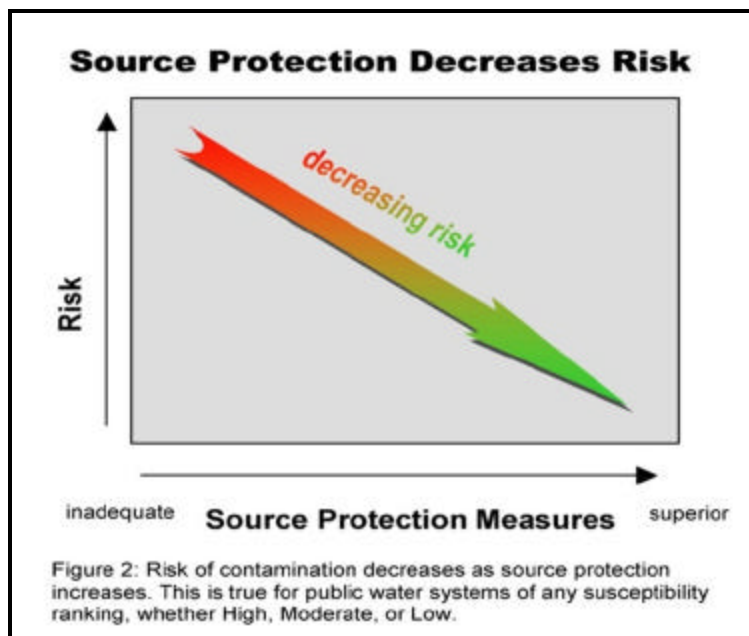
3. Agricultural Activities – Agricultural land uses (cropland, landscape operations, and nurseries) comprise about 7% of the combined watersheds. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, underground and aboveground storage tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills. Agricultural activities can also be a potential source of microbial contamination from improper manure management.

Agricultural Recommendations:

Work with communities within the combined watersheds to:

- ✓ Work with farmers to make them aware of the water supply and to encourage the use of a U.S. Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ The Massachusetts Department of Food & Agriculture’s booklet titled “On-Farm Strategies to Protect Water Quality - An Assessment & Planning Tool for Best Management Practices” (December 1996) describes technical and financial assistance programs related to the control of erosion and to the management of nutrients, pests, manure, grazing and irrigation.
- ✓ Work with farmers, nurseries and landscapers to ensure that pesticides, fertilizers and manure are being stored within a structure designed to prevent runoff.

(Continued on page 8)



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity Zone C	Threat	Zone C Source ID #	Quantity Ipswich River Watershed	Potential Contaminant Sources*
Agricultural					
Dairy Farms	--	M	--	1	Improper handling of manure (microbial contaminants)
Fertilizer Storage or Use	2	M	01S, 03S	Few	Leaks, spills, improper handling, or over-application of fertilizers
Landscaping	--	M	--	1	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Manure Storage or Spreading	1	H	01S	Few	Improper handling of manure (microbial contaminants)
Nurseries	2	M	02S	Few	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Pesticide Storage or Use	2	H	01S, 02S	Few	Leaks, spills, improper handling, or over-application of pesticides
Commercial					
Airports	1	H	01S	--	Spills, leaks, or improper handling of fuels, de-icers, salt, and other hazardous chemicals
Body Shops	--	H	--	9	Improper management of vehicle paints, solvents, and primer products
Gas Stations	2	H	01S	31	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	1	H	01S	39	Spills, leaks, or improper handling of automotive fluids and solvents
Bus and Truck Terminals	--	H	--	6	Spills, leaks, or improper handling of fuels and maintenance chemicals
Cemeteries	1	M	01S	Several	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Dry Cleaners	--	H	--	7	Spills, leaks, or improper handling of solvents and wastes
Golf Courses	1	M	02S	3	Over-application or improper handling of fertilizers or pesticides
Medical Facilities	--	M	--	2	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes

Land Uses	Quantity Zone C	Threat	Zone C Source ID #	Quantity Ipswich River Watershed	Potential Contaminant Sources*
Commercial					
Nursing Homes	--	L	--	2	Microbial contaminants
Photo Processors	--	H	--	3	Spills, leaks, or improper handling or storage of photographic chemicals
Printer and Blueprint Shops	1	M	01S	8	Spills, leaks, or improper handling or storage of printing inks and chemicals
Repair Shops (Engine, Appliances, Etc.)	--	H	--	5	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Sand and Gravel Mining/Washing	--	M	--	3	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial					
Asphalt, Coal Tar, and Concrete Plants	--	M	--	2	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes
Hazardous Materials Storage	--	H	--	8	Spills, leaks, or improper handling or storage of hazardous materials
Machine/Metalworking Shops	--	H	--	8	Spills, leaks, or improper handling of solvents; metal tailings
RCRA TSDF Facilities	--	H	--	1	Spills, leaks, or improper handling or storage of hazardous wastes
Residential					
Fuel Oil Storage (at residences)	100+	M	01S, 02S, 03S	100+	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	100+	M	01S, 02S, 03S	100+	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	100+	M	01S, 02S, 03S	100+	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous					
Aboveground Storage Tanks	3	M	01S	11	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	100+	L	01S, 02S, 03S	100+	Microbial contaminants
Composting Facilities	1	L	01S	--	Storage and improper handling of organic material, animal waste, and runoff
Fire Training Facilities	1	M	01S	--	Improper use or storage of fuels and other chemicals
Large Quantity Hazardous Waste Generators	--	H	--	14	Spills, leaks, or improper handling or storage of hazardous materials and waste
Landfills and Dumps	1	H	01S	2	Seepage of leachate

Land Uses	Quantity Zone C's	Threat	Zone C Source ID #	Quantity Ipswich River Watershed	Potential Contaminant Sources*
Miscellaneous					
Military Facilities (Past And Present) Type: former NIKE Sites	2	H	01S, 03S	--	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump sites
NPDES Locations	1	L	01S	2	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	4	--	01S	57	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	02S	6	Spills, leaks, or improper handling or storage of deicing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	1	M	02S	4	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	2	M	01S, 02S	56	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains	1/100+	L	01S/02S	100+	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	3	M	01S, 02S, 03S	Several	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	20	H	01S, 02S	191	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	4	L	01S, 02S	125	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/ Recycling Stations	--	M	--	3	Improper management, seepage, and runoff of water contacting waste materials
Wastewater Treatment Plant/Collection Facility/ Lagoons	--	M	--	1	Improper handling or storage of treatment chemicals or equipment maintenance materials; improper management of wastewater
Water Treatment Sludge Lagoons	1	M	01S	1	Improper management of sludge and wastewater
Notes:					
<ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>					

4. Residential Land Uses – Approximately 80% of the combined watersheds consist of residential areas, of which a large portion is served by private septic systems, with the remainder being served by municipal sewerage. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

**When you fertilize the lawn,
Remember
you're not *just* fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108

- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

Work with communities within the combined watersheds to:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

5. Transportation Corridors - Several major transportation corridors and other paved and unpaved local roads cross through the watersheds. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins. The steep topography of the watershed results in application of de-icing materials to protect public health and safety by keeping the roads passable.

Transportation Corridor Recommendations:

Work with communities within the combined watersheds to:

- ✓ Identify stormwater drains and the drainage system along transportation corridors.
- ✓ Work with the Towns and State to have catch basins inspected, maintained, and cleaned on a regular schedule.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

- ✓ Establish vegetated buffers along roads and parking areas to provide some filtration of contaminants.
- ✓ Encourage regular street sweeping. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.
- ✓ Conduct emergency drills to be ready for spills.
- ✓ Regularly inspect the watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ Work with the Massachusetts Highway Department to erect a suitable barrier on the portion of Route 1A that is adjacent to Wenham Lake.

6. Road and Maintenance Depots - Potential sources of contamination in state and municipal facilities can result from accidental dumping, spills, leaks, vehicle washing operations, or from wastewater treatment. Waste management and product storage pose the greatest threats with a wide variety of potentially harmful contaminants.

Road and Maintenance Depots Recommendations:

Work with communities within the combined watersheds to:

- ✓ Institute **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/neeat/muni/index.html>. Encourage road and maintenance depots to develop best management practices to insure proper salt storage, proper maintenance of facilities and good housekeeping practices.
- ✓ Adequately size salt pile structure to allow for the loading and unloading of salt within the structure. Review the Department of Environmental Protection’s Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.
- ✓ Encourage proper storage of materials at these facilities. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.

7. Presence of Oil or Hazardous Material Contamination Sites – The watersheds for Salem/Beverly and the Ipswich River contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0000230, 3-0000231, 3-0000235, 3-0003597, 3-0000008, 3-0001813, 3-0014088, 3-0011228, 3-0003711, 3-0014696, 3-0017065, 3-0019416, 3-0000168, 3-0001494, 3-0001505, 3-0001941, 3-0004485, 3-0006026, 3-0010212, 3-0014402, 3-0015046, 3-0016824, 3-0018425, 3-0000692, 3-0002363, 3-0002584, 3-0002804, 3-0004007, 3-0004481, 3-0004583, 3-0017390, 3-0001565, 3-0006062, 3-0012406, 3-0014805, 3-0018398, 3-0019352,

3-0013565, 3-0004670, 3-0018082, 3-0000471, 3-0000518, 3-0000625, 3-0000776, 3-0001268, 3-0001728, 3-0001916, 3-0001973, 3-0002889, 3-0003548, 3-0003766, 3-0004022, 3-0004170, 3-0012586, 3-0013922, 3-0014811, 3-0014814, 3-0015247, 3-0017097, 3-0019380 and 3-0019651. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

8. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the City of Beverly has a Watershed Protection Overlay District Zoning Ordinance that was adopted in 1990; however, the watershed towns do not have water supply protection controls that meet DEP’s Surface Water Protection regulations 310 CMR 22.20 (b) and (c). A Surface Water Supply Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply reservoirs.

Protection Planning Recommendations:

Work with communities within the combined watersheds to:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Encourage watershed towns to adopt controls that meet 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone A?	YES (Putnamville Reservoir)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials. To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements.
	NO (Wenham Lake, Longham Reservoir)	
Is the Zone A/ Emergency Planning Zone posted with "Public Drinking Water Supply" Signs?	YES	The Emergency Planning Zone for the Ipswich River Watershed is not posted Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is the Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply -related activities the only activities within the Zone A?	YES (Wenham Lake, Longham Reservoir)	Continue monitoring for non-water supply activities in Zone As.
	NO (Putnamville Reservoir)	Monitor prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20B and 22.20C?	NO	Work with the Planning Board and the Beverly City Council to compare land use controls to see that they meet current requirements of 310 CMR 22.20 (B) and 310 CMR 22.20 (C). Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Work with the Towns of Danvers, Topsfield and Wenham to include Salem/Beverly watersheds in their protection controls.
Planning		
Does the PWS have a local surface water protection plan?	NO	Develop a surface water supply protection plan. Follow "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	SOME	Currently, outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the Zone C.

- ✓ Continue to work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the towns, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Protection areas that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Emergency Planning Recommendations for Class B River Intakes

Prevention

Public water suppliers with a river source may take preventive measures to protect the source from unexpected releases. Here are some suggestions.

1. Title III (Emergency Planning and Community Right-to-Know) of the Superfund Amendments & Reauthorization Act (SARA) of 1986 required that each community **develop a comprehensive emergency response plan**. Suppliers should review the existing plan to ensure that water supply issues are satisfactorily addressed in the plan, that current response personnel and their correct telephone numbers are listed, and that the entire plan is regularly reviewed and updated by community officials.

The community plan, or a separate water supplier plan, should include copies of policies in the event of spills or releases; regulatory notification requirements such as what size spills are required to be reported, who to call, telephone numbers, and what information is required to be reported; map of intakes, tributaries, watershed boundaries, adjacent public wells, and locations of sites where spills or accidental releases could occur.

2. **Identify, map and distribute information** to local emergency responders regarding the locations of intakes on the river, tributaries, watershed boundaries, public wells adjacent to river; chemical use at municipal, state, and industrial facilities in the watersheds (contact Fire Dept., DEP); locations of stormwater drains and the locations of known dams in the event that they can be manipulated by authorized individuals for contaminant control.

The Fire Dept., Board of Health, Planning Board, Local Emergency Planning Committee (LEPC), DEP and others may have existing information to help with your work. SARA requires companies to work with the community's LEPC if they handle extremely hazardous chemicals in quantities above established thresholds.

3. **Develop a communication list** of contacts at upstream and downstream facilities, dams, as well as other public water suppliers on, or adjacent to, rivers. Notify owners and operators of these facilities about the location of your intake and request, in writing, that you be notified immediately in the event of a chemical spill or unexpected discharge. Take this opportunity to educate others about water supply protection.
4. **Provide comments** to municipal boards in other cities/towns in the watershed about proposed development, land use controls, Best Management Practices (BMPs) for stormwater flow into tributaries, and other issues to avoid future problems.
5. **Post signs** along major roads in watershed which direct the public to call "911" or other appropriate local number in case of spills. Be aware of accident-prone areas and transport routes of chemicals if possible.
6. **Educate** the public, local officials, Civil Defense, local emergency response team, and others about water supply protection issues. Educate businesses about toxic use reduction.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

7. **Conduct household hazardous waste collection days** and establish permanent collection sites, away from sensitive watershed areas, for used batteries, paints, motor oil, etc.
8. **Conduct drills**, in coordination with local/regional response teams, to test policies and procedures and to practice responding to various situations. Including businesses, local officials and staff, Fire Departments, Boards of Health, Civil Defense, school administration, and others in planning and implementing the drills will allow for several town or region-wide concerns to be addressed and tested at the same time, including: issuing health advisories, conducting neighborhood and/or school evacuations, and evaluating the town's communication system (both making responders aware of the emergency and issuing advisories to the public when necessary via television, radio, and other news media), equipment and emergency plan in general.
9. Critique the drills and **modify components** of the emergency response system as needed.

Responding to Emergencies

Drinking water supply professionals responding to local emergencies need to be adequately prepared and trained, and know their roles and responsibilities. Here are some suggestions.

1. **Know regulatory reporting requirements** of state and federal agencies. Know who to call, telephone numbers and what information to report.
2. **Know your role & responsibilities.** Have access to, and be familiar with, the emergency communication list, policies and procedures for emergency response; know when, and how, to safely handle spills or other events until first responders arrive on scene; know what steps to take to avoid drawing contaminants into the water supply system; be familiar enough with local watershed characteristics to provide incident commander with information and advice.

**When you wash your car in the driveway,
Remember
you're not just washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108

3. **Provide training and materials to responding staff.** Water supply staff, including new employees, should be adequately trained, have access to appropriate materials (storm drain covers, absorbent pads, booms, etc.), up-to-date policies, procedures, and communication lists to perform tasks for which they are responsible.

Follow-up

Steps can be taken to ensure better preparedness in the event of future emergency situations. Here are some suggestions.

1. **Provide follow-up reports** to the public on the resolution of the situation.
2. **Share the information** learned from drills and real situations with others in order to better protect all public drinking water sources.

Section 4: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Current Land Uses and Source Protection:

As with many water supply protection areas, the system watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- The review of development plans in the City of Beverly and the Town of Wenham
- Conducting monthly stream monitoring throughout the watersheds that includes routine chemistry and microbiology
- Managing geese on Wenham Lake by keeping reservoir levels high during summer months

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Develop and implement a Surface Water Supply Protection Plan.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in watersheds and to cooperate on responding to spills or accidents.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or hazardous materials contamination site.
- ✓ Work cooperatively with Boards of Health to develop an inventory of septic systems in Hamilton, Topsfield, and Wenham.
- ✓ Work with businesses and others who have landscaped areas in the watersheds to encourage BMPs for the use of fertilizer and pesticide.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Continue to inspect the Zone A areas regularly, and when feasible, remove prohibited non-water supply activities.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects.

Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination

and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watersheds. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 5: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN SALEM/BEVERLY WATER SUPPLY PROTECTION AREAS AND IPSWICH RIVER WATERSHED

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
136046	SUN COMPANY, INC.	44 ENON ST	BEVERLY	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
				FUEL DISPENSER	FUEL DISPENSER STAGEII
136053	CENTERVILLE SERVICE	443 ESSEX ST	BEVERLY	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
				HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				FUEL DISPENSER	FUEL DISPENSER STAGEII
228294	GORDON COLLEGE	255 GRAPEVINE RD	BEVERLY	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
312333	MINUTEMAN PRESS	23 ENON ST	BEVERLY	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
357957	HESS	38 ENON ST	BEVERLY	FUEL DISPENSER	FUEL DISPENSER STAGEII
228294	GORDON COLLEGE	255 GRAPEVINE RD	WENHAM	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE MINOR
329861	WENHAM DEPARTMENT OF PUBLIC WORKS	91 GRAPEVINE RD	WENHAM	HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
				DISCHARGE	NON-NOTIFIER IWW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
307945	GETTY 30715	ROUTE 125	ANDOVER	FUEL DISPENSER	FUEL DISPENSER
33003	MA DEPARTMENT OF PUBLIC WORKS	RTE 25 & PROSPECT ST	ANDOVER	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
35863	BOXFORD GULF	7 ELM ST	BOXFORD	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
31090	MASCONOMET REGIONAL HIGH SCHOOL	ENDICOTT RD	BOXFORD	HANDLER ----- GROUNDWATER DISCHARGE	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE ----- GROUNDWATER DISCHARGE
295264	BELLS CAMERA & VIDEO	184 CAMBRIDGE ST	BURLINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
35978	BONNIE BRITE CLEANERS	120 CAMBRIDGE ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
351657	BURLINGTON BOARD OF HEALTH	61 CENTER ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32943	NEAT N CLEAN DRY CLEANERS	228 CAMBRIDGE ST	BURLINGTON	PLANT	AIR QUALITY PERMIT
320034	SHELL	198 CAMBRIDGE ST	BURLINGTON	FUEL DISPENSER ----- HANDLER	FUEL DISPENSER ----- VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
53498	BURLINGTON TOWN OF	29 CENTER ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132598	HOGAN REGIONAL CENTER	450 MAPLE ST	DANVERS	HANDLER ----- HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE ----- VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
223242	MA DPW DANVERS DEPOT	485 MAPLE ST	DANVERS	HANDLER	BELOW HW REGULATED THRESHOLDS

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
367235	MOBIL	431 NEWBURY ST	DANVERS	FUEL DISPENSER	FUEL DISPENSER STAGEII
244046	NORTH SHORE COMMUNITY COLLEGE	1 FERNCROFT RD	DANVERS	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
178417	RONCO MACHINE CORP	370 ANDOVER ST	DANVERS	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131432	STUTTGART NORTHEAST	509 MAPLE ST	DANVERS	HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
				HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
364399	TOSCO EXXON	435 NEWBURY ST	DANVERS	FUEL DISPENSER	FUEL DISPENSER STAGEII
302941	BODYCOTE HOOVEN INC	11 OLD RIGHT RD	IPSWICH	TURA REPORTER	LARGE QUANTITY TOXICS USER
136528	CUMBERLAND FARMS	66 TURNPIKE RD	IPSWICH	FUEL DISPENSER	FUEL DISPENSER
329379	114 IMPORTS INC	234 SOUTH MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
371841	AMBIENT TEMPERATURE CORP	11 RIVER ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
31372	AUTOROLL MACHINE CORP	11 RIVER ST	MIDDLETON	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
215558	AVLSON CO THE	191 S MAIN ST	MIDDLETON	HANDLER	TRANSPORTER
278798	BOSTIK INC	211 BOSTON ST	MIDDLETON	TURA REPORTER	LARGE QUANTITY TOXIC USER
				HANDLER	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
				DISCHARGE	INDUSTRIAL WASTE WATER SURFACE DISCHARGE WATER MAJOR
				HANDLER	TREATMENT STORAGE DISPOSAL FACILITY RCRA HAZARDOUS WASTE
136094	BOUCHARDS AUTO SERVICE	212 MAPLE ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
				FUEL DISPENSER	FUEL DISPENSER STAGEII
1080	DANVERS WATER TREATMENT PLANT	30 LAKE ST	MIDDLETON	SURFACE DISCHARGE	SURFACE WATER MINOR
177524	EXXON CO USA	CORNER OF RTES 62 & 114	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
363425	FAST FREDDIES	265 SOUTH MAIN ST	MIDDLETON	FUEL DISPENSER	FUEL DISPENSER STAGEII
283702	FULLER POND VILLAGE CONDOMINIUMS	STONEY BROOK LANE	MIDDLETON	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE MAJOR

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
326168	J&S FINISH INC	17 LONERGAN RD	MIDDLETON	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
312313	JODYS QUIK PRINT	14 EAST ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
327120	JV MAX CORPORATION	29 SOUTH MAIN ST	MIDDLETON	FUEL DISPENSER	FUEL DISPENSER STAGEII
35318	LEE J T CONSTRUCTION INC	300 ESSEX ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
135310	MIDDLETON AEROSPACE CORPORATION	206 SOUTH MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
357923	MIDDLETON AUTO CLINIC INC	227 MAPLE ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
357684	MIDDLETON CLEANERS	232 MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
304351	MIDDLETON DEPARTMENT OF PUBLIC WORKS	195 NORTH MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
132760	MIDDLETON GOLF COURSE	S. MAIN ST RTE 114	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
39508	MIDDLETON LANDFILL	RIVER ST/DOVER ST	MIDDLETON	SOLIDWASTE LANDFILL	CHARGEABLE LANDFILL

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
30972	MIDDLETON MUNICIPAL LIGHT	S. MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
36594	MIDDLETON SQUARE EXXON	4 S. MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
39508	MIDDLETON TRANSFER STATION	11 NATSUE WAY OFF RIVER ST	MIDDLETON	TRANSFER STATION	SMALL TRANSFER STATION
25999	MIT BATES LINEAR ACCELERATOR	21 MANNING AVE	MIDDLETON	HANDLER ----- HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS ----- SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
223307	MW GAS INC	73 NORTH MAIN ST	MIDDLETON	FUEL DISPENSER	FUEL DISPENSER STAGEII
257887	NORTH SHORE TECHNICAL HIGH SCHOOL	30 LOGBRIDGE RD	MIDDLETON	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131553	R & K PRECISION MACHINE INC	LOG BRIDGE RD	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
367829	RAYS AUTO SERVICE	73 NORTH MAIN ST	MIDDLETON	HANDLER	NON-NOTIFIER HW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
6563	RICHARDSON FARMS INC	156 SOUTH MAIN ST	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
357373	SANDYS MARKET	223 MAPLE ST	MIDDLETON	FUEL DISPENSER ----- HANDLER ----- HANDLER	FUEL DISPENSER STAGEII ----- VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE ----- VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
302738	SPARKLE SPOT CAR WASH	107 FOREST ST	MIDDLETON	APPROVED	INDUSTRIAL WASTE WATER HOLDING TANK
321352	TEDESCHI FOOD SHOP	4 SOUTH MAIN ST	MIDDLETON	FUEL DISPENSER	FUEL DISPENSER STAGEII
323626	VERIZON NEW ENGLAND INC	35 VILLAGE RD	MIDDLETON	PLANT	AQ NATURAL MINOR W/ PTE<MAJ & >50% OF MAJ
298535	WALGREENS	230 SOUTH MAIN ST	MIDDLETON	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
361645	WATSON BROTHERS INC	6 BIRCH RD	MIDDLETON	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
193818	CHEMLAWN SERVICES CORP	94 FLAGSHIP DR	NORTH ANDOVER	HANDLER	VERY SMALL QUANTITY GENERATOR
131079	EAGLE TRIBUNE PUBLISHING COMPANY	100 TNPk ST	NORTH ANDOVER	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
131082	EASTPRINT INC	350 WILLOW ST S	NORTH ANDOVER	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
296396	FLAGSHIP PRESS INC	150 FLAGSHIP DR	NORTH ANDOVER	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
135925	GETTY 30561	785 TURNPIKE ST	NORTH ANDOVER	FUEL DISPENSER	FUEL DISPENSER
28748	MASSACHUSETTS ELECTRIC COMPANY	1101 TURNPIKE ST	NORTH ANDOVER	FUEL DISPENSER	FUEL DISPENSER
				HANDLER	SMALL QUANTITY GENERATOR
				HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
362375	MORTON INTERNATIONAL INC	60 WILLOW ST	NORTH ANDOVER	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
				HANDLER	LARGE QUANTITY GENERATOR
321312	NORTH ANDOVER PRIME	1725 TURNPIKE ST	NORTH ANDOVER	FUEL DISPENSER	FUEL DISPENSER
327742	7 ELEVEN 30238	237 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
52711	ADDISON WESLEY CO	1 JACOB WAY	NORTH READING	PLANT	AIR QUALITY PERMIT
311762	ADVANCED PHOTO INC	4 LOWELL RD	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
251722	BARD MEDISYSTEMS	87 CONCORD ST	NORTH READING	HANDLER	BELOW HAZARDOUS WASTE REG LEVELS
				TURA REPORTER	BELOW TOXICS USE REDUCTION REG LEVELS
300381	BOBCAT OF BOSTON INC	20 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
134192	CAROUSEL CLEANERS	265 MAIN ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
29369	CENTRE TRUCKING SERVICES INC	81 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
34893	CHASE TRANSMISSIONS	90 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
315041	COMMONWEALTH OIL INC	290 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
135959	DB MART 34	231 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
281186	DOUGLAS DESIGN AND CONSTRUCTION INC	126 MAIN ST UNIT 7	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
134191	DYAR SALES & MACHINERY CO	75 CONCOR. ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
367739	EXXONMOBIL OIL CORP	160 PARK ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
29166	GALLANT ELECTRIC MOTOR SERVICE	206 NORTH ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
525	GREENBRIAR ESTATES CONDOMINIUMS	MAIN ST & RTE 28	NORTH READING	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE
35155	HEFFRON MATERIALS	68 WINTER ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
293945	HILLVIEW COUNTRY CLUB	149 NORTH ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
34380	HONDA BARN	260 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
31903	JOES SERVICE CENTER	31 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
121254	LILY TRUCK LEASING	84 CONCORD ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
135961	M&H AUTO SERVICE	1 WASHINGTON ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
33375	MA ONE AUTO BODY	340 MAIN ST RTE 28	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
297362	MEADOWVIEW HEALTHCARE NURSING CENTER	134 NORTH ST	NORTH READING	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE
341296	MICHAELS AUTOBODY	126 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
	MOBIL 11939	MAIN STREET	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
131087	MSM INDUSTRIES INC	60 CONCORD ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
132775	NEW ENGLAND MOTOR FREIGHT INC	90 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
31816	NIXDORF COMPUTER CORP	80 MAIN ST RTE 28	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327420	NORTH READING DEPARTMENT OF PUBLIC WORKS	166 CHESTNUT ST	NORTH READING	HANDLER ----- FUEL DISPENSER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE ----- FUEL DISPENSER
329093	NORTH READING FIRE DEPARTMENT	152 PARK ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
317950	NORTH READING HIGH SCHOOL	PARK ST	NORTH READING	PLANT	AIR QUALITY PERMIT
31169	NORTH READING HONDA	49 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
328706	NORTH READING SCHOOL DEPARTMENT	191 PARK ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327939	NORTH READINGS BEST	144 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
312394	NORTH SHORE PRINTING INC	281 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
226966	PACETTI CORPORATION	4 HALLBERG PARK	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
31554	PARAMOUNT AUTO CENTER INC	324 MAIN ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
887	PARK COLONY CONDOMINIUM TRUST	36-46 MAIN ST	NORTH READING	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE
31861	PAULS NORTH READING AUTO BODY INC	240 PARK ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
178012	QUICK MART NUMBER 30238	237 MAIN ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
36091	READING MOWER SERVICE	90 MAIN ST BAY 13	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132160	RICHARDSONS SERVICE STA	21 WINTER ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
330270	ROUTE 28 MOTORS EXCHANGE	137 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
371811	SERVIS CLEANERS	20A MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327759	SPENCER COMPANY	CENTRAL ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
178106	STAR MARKETS COMPANY INC	265 MAIN ST	NORTH READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
365930	STOP & SHOP GAS 68	97 MAIN ST	NORTH READING	FUEL DISPENSER	FUEL DISPENSER
135981	SUN COMPANY INC	142 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
339694	SUNBRIDGE CARE & REHABILITATION CENTER	134 NORTH ST	NORTH READING	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE
38031	SUNOCO SERVICE STATION	146 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
321780	TERADYNE INC	500 RIVER PARK	NORTH READING	TURA REPORTER	LARGE QUANTITY TOXICS USER
376387	TERADYNE INC	300 RIVERPARK	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
33770	THOMAS DAN AUTO BODY INC	209 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37855	TRAILBLAZER KAWASAKI INC	49 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
311325	US POSTAL SERVICE MIDDLESEX ESSEX P&DC	76 MAIN ST	NORTH READING	GROUNDWATER DISCHARGE HANDLER	GROUNDWATER DISCHARGE VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
38000	VALVOLINE INSTANT OIL CHANGE	216 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
319070	VERIZON NEW ENGLAND INC	74 CONCORD ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325148	WALMART #2660	72 MAIN ST	NORTH READING	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
333802	WILLIAMS AND PARTNERS	66 CONCORD ST	NORTH READING	HANDLER FUEL DISPENSER HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE FUEL DISPENSER VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
365934	7 ELEVEN 32952	23 NEWBURY ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
131122	AGGREGATE INDUSTRIES NORTHEAST REGION	55 RUSSELL ST	PEABODY	HANDLER HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE SMALL QUANTITY GENERATOR WASTE OIL/PCBS
356681	ANTOINES SERVICE	480 LOWELL ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
356681	ANTOINES SERVICE INC	480 LOWELL ST	PEABODY	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
364207	ATLANTIC WASTE SYSTEMS NORTH	295 FOREST ST	PEABODY	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
317120	BILLS AUTOMOTIVE REPAIR	153 NEWBURY ST	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
323087	BOSTON FENCE & SUPPLY COMPANY	128 NEWBURY ST	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
288793	FILA RESEARCH AND DEVELOPMENT CENTER	83 PINE ST	PEABODY	PLANT	BELOW AQ REGULATED THRESHOLDS
136103	GAETA AUTOMOTIVE SERVICES INC	153 NEWBURY ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
296784	GAETA ENTERPRISES INC	14 NEWBURYPORT TNPK	PEABODY	DISCHARGE	INDUSTRIAL SEWER WASTE WATER
				HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
136116	GAETA TOWING SERVICES INC	136 NEWBURY ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
136118	J & H AUTO & TRUCK REPAIR	129 NEWBURY ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
27725	KUSTOM COACH WORKS	134R NEWBURY ST RTE 1	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE

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136117	LAKE STREET CITGO INC	26 LAKE ST	PEABODY	FUEL DISPENSER ----- HANDLER	FUEL DISPENSER STAGEII ----- SMALL QUANTITY GENERATOR WASTE OIL/PCBS
317605	PEABODY DEPARTMENT OF PUBLIC SERVICE	38 BUTTERNUT AVE	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
33798	REDI RITE AUTO BODY	80 NEWBURY ST	PEABODY	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
325682	SHELL 137823	468 LOWELL ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
325681	SHELL 137824	14 NEWBURYPORT TPKE	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
262657	STADIUM MOBIL MART	545 LOWELL ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
337472	SUNOCO 0495-7957	144 NEWBURY ST	PEABODY	FUEL DISPENSER	FUEL DISPENSER STAGEII
364281	WASTE SUPPORT SERVICES LLC	300 FOREST ST	PEABODY	HANDLER ----- HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE ----- VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
32694	MA DEPARTMENT OF PUBLIC WORKS	9 CAUSEWAY RD	READING	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
32694	MA HIGHWAY SITE 76	9 CAUSEWAY RD	READING	FUEL DISPENSER	FUEL DISPENSER

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367789	MOBIL 10534	1330 MAIN ST	READING	FUEL DISPENSER	FUEL DISPENSER
209957	SANBORN HILL SERVICE STATION	1462 MAIN ST	READING	FUEL DISPENSER	FUEL DISPENSER
25929	CEDAR CREST PRECISION	44R MAIN ST	TOPSFIELD	HANDLER	BELOW HW REGULATED THRESHOLDS
				PLANT	BELOW AQ REGULATED THRESHOLDS
				TURA REPORTER	BELOW TUR REGULATED THRESHOLDS
25929	CEDAR CREST PRECISION	44R MAIN ST	TOPSFIELD	DISCHARGE	BELOW IWW REGULATED THRESHOLDS
327047	COUNTRY MOTORS	107 IPSWICH RD	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
29672	DAWES ENGINE GENERATOR CO INC	224 BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
336425	ENON MICROWAVE INC	422 A BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
28958	EVANS IND INC	249 BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
131209	FAIRVIEW MACHINE CO	427 BOSTON ST	TOPSFIELD	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS

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295067	MASCONOMET HEALTHCARE CENTER DBA	123 HIGH ST	TOPSFIELD	GROUNDWATER DISCHARGE	GROUNDWATER DISCHARGE MAJOR
358479	MBD OUTDOOR POWER EQUIPMENT INC	224 BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
258019	METRO CENTERLESS GRINDING	426A BOSTON ST	TOPSFIELD	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
134365	NEW MEADOWS AUTO REPAIR	86 CENTRAL ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
205511	ROUTE ONE TIRE	234 BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
209980	SILVA TIRE COMPANY	158 HAVERHILL RD	TOPSFIELD	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
				HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
328296	TOPSFIELD TIRE & LUBE	368 BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
				HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
134363	THE TRANSLATORS INC	458 BOSTON ST	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
293430	TURNPIKE SERVICES II INC	368 BOSTON ST	TOPSFIELD	FUEL DISPENSER	FUEL DISPENSER STAGEII

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
328601	VIP CLEANERS II INC	20 REAR MAIN ST	TOPSFIELD	HANDLER	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
132254	AAMCO TRANSMISSIONS	611 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131607	AGFA DIVISION, BAYER CORPORATION	200 BALLARDVALE ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
377210	AGGREGATE INDUSTRIES	900 SALEM ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
				TURA REPORTER	LARGE QUANTITY TOXICS USER
32439	ALS SERVICE CENTER	103 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131268	AMETEK AEROSPACE PRODUCTS, INC.	50 FORDHAM RD	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
131259	ANALOG DEVICES INC	804 WOBURN ST	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
				TURA REPORTER	LARGE QUANTITY TOXICS USER
114468	ANTONS CLEANERS INC	240 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
323732	APPLIED SCIENCE & TECHNOLOGY	90 INDUSTRIAL WAY	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
357200	AZORES CORP	260 FORDHAM RD	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
327930	B & L ENTERPRISES	880 MAIN ST	WILMINGTON	PLANT	AIR QUALITY PERMIT

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365790	BENEVENTO ASPHALT CORP	900 SALEM ST	WILMINGTON	PLANT	RES APPLICATION APPROVED
				PLANT	AIR QUALITY PERMIT
371015	BROOKS PHARMACY 582	208 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
36008	BROWNS CUSTOM AUTO BODY	210 ANDOVER ST UNIT 12	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
933	BUTTERS ROW WTP	TOWN HALL, WATER DEPT	WILMINGTON	SURFACE DISCHARGE	SURFACE DISCHARGE WATER DISCHARGE
28543	CAIN FRED F CHRYSLER PLYMOUTH	580 MAIN ST	WILMINGTON	DISCHARGE	AIR QUALITY PERMIT
293634	CAR MART INC	275 MAIN ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
134424	CHARLIES AUTO BODY	611 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
116704	COOPER INDUSTRIES INC	226 ANDOVER ST	WILMINGTON	TURA REPORTER	BELOW TOXICS USE REDUCTION REG LEVELS
249734	CVS #1845	240 MAIN ST	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
338875	DEE RAY INC	919 MAIN ST	WILMINGTON	DISCHARGE	MWRA SEWER CONNECTION
132251	DIAMOND CRYSTAL SALT CO	10 BURLINGTON AVE	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

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335016	DR SEVAK ABRAHAMIAN DDS	384 MIDDLESEX AVENUE	WILMINGTON	HANDLER	AIR QUALITY PERMIT
26009	DUPONT E I DENEMOURS & CO INC	1 CORNELL PL	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
376134	DUPONT PHOTONICS TECHNOLOGIES	100 FORDHAM RD	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
900	DYNAMICS RESEARCH CORP	60 CONCORD ST	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
132256	E T M MFG	21 CONCORD ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
306387	ENGLEHARD CORPORATION	201 BALLARDVILLE ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
30080	F & R AUTO SUPPLY CORP	160 LOWELL ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32345	FEDERAL EXPRESS CORP	10 CORNELL PL	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32267	FIRESTONE STORE	496 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
323173	FISHMAN TRANSDUCERS	340D FORDHAM RD	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
345501	FLAGSHIP HYUNDAI INC	220 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE

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311484	G&G PRINTING COMPANY	214 ANDOVER ST #7	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
191962	GETOV MACHINE INC	150 WEST ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
335097	GFI BIG JOE LLC	1 BURLINGTON AVENUE	WILMINGTON	PLANT	AIR QUALITY PERMIT
126548	GIBBS OIL 1595	342 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
319131	GLENS FALLS LEHIGH CEMENT COMPANY	90 EAMES ST	WILMINGTON	PLANT	AIR QUALITY PERMIT
134423	HAMPSHIRE PRESS INC THE	900 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
336596	HEFFRONS AUTOMOTIVE	603 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
126538	HESS STATION 21206	273 MAIN ST	WILMINGTON	FUEL DISPENSER ----- HANDLER	FUEL DISPENSER ----- VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
31409	HIGH TECH MACHINE & TOOL INC	218 ANDOVER ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
36358	IDEAL SERVICE RD	210 ANDOVER ST BAY 20	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
334924	INDUSTRIAL TOOL REPAIR CORPORATION	382 MIDDLESEX AVENUE	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

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357434	INTELLISENSE CORPORATION	36 JONSPIN RD	WILMINGTON	PLANT	AIR QUALITY PERMIT
134414	J J T ENGINEERING INC	319 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
126549	JIMMYS GARAGE INC	945 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
10461	KIRKWOOD TECHNICAL PUBLICATIONS	904 MAIN ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
131274	KOCH MEMBRANE SYSTEMS INC	850 MAIN ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
301506	LARRYS OIL & BURNER SERVICE	880 MAIN ST	WILMINGTON	FUEL DISPENSER ----- HANDLER	FUEL DISPENSER ----- VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
31850	LOCHART MACHINE CO	287 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
39914	MAPLE MEADOW LANDFILL PROJECT	923 MAIN ST	WILMINGTON	SOLIDWASTE LANDFILL	LANDFILL
215608	MARTIN MARIETTA CORP	50 FORDHAM RD	WILMINGTON	HANDLER	LARGE QUANTITY GENERATOR OF HAZ WASTE
367888	MOBIL 11733	318 LOWELL ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
370415	NEORESINS INC	730 MAIN ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
370415	NEORESINS INC	730 MAIN ST	WILMINGTON	HANDLER ----- PLANT	LARGE QUANTITY GENERATOR OF HAZ WASTE ----- AIR QUALITY PERMIT
334914	NORTH WILMINGTON SERVICE INC	360 MIDDLESEX AVE	WILMINGTON	HANDLER ----- FUEL DISPENSER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS ----- FUEL DISPENSER
131605	OLIN CORPORATION	51 EAMES ST	WILMINGTON	HANDLER ----- DISCHARGE	LARGE QUANTITY GENERATOR OF HAZ WASTE ----- INDUSTRIAL WASTE WATER TO SEWER
363566	PACIFIC SCIENTIFIC CORPORATION	110 FORDHAM RD	WILMINGTON	PLANT	AIR QUALITY PERMIT
132255	PEPSI COLA BOTTLING GROUP	111 EAMES ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
280472	PRECISION GRAPHICS	3A LOPEZ RD	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
327059	RACHEL A PERLITSH DMD	25 LOWELL ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132847	REGIONAL HEALTH CENTER	500 SALEM ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
341505	ROUTE 38 GAS & SERVICE	603 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER

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134419	SHEA CONCRETE PRODUCTS INC	773 SALEM ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
325894	SHELL 137892	586 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
325893	SHELL 137893	361 MIDDLESEX AVE	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
373667	SILVER LAKE DENTAL	96 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
306507	SIR SPEEDY PRINTING 81710	609 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
372031	SMART MODULAR TECHNOLOGIES	7 LOPEZ RD	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
35575	SMITH JR ARTHUR R INC	214 ANDOVER ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
117230	STAFFORD MANUFACTURING CORP	256 ANDOVER ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
				HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
37314	STRAIGHTLINE AUTO BODY INC	210 ANDOVER ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
131254	SURFACE COATING INC	100 EAMES ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXICS USER
131265	TEXTRON SYSTEMS CORPORATION	201 LOWELL ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	ST ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131267	THERMO ELECTRON TECOMET	115 EAMES ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
364503	TOSCO CORP	205 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
210017	TOWN MARKET CITGO	490 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
37327	U HAUL CENTER OF WILMINGTON	687 MAIN ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
294759	VILLAGE CLEANERS	211 LOWELL ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
215600	WATERS PRINTING CO INC	12 WALTHAM ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF HAZ WASTE
				PLANT	AIR QUALITY PERMIT
308853	WILMINGTON DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	HANDLER	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
				FUEL DISPENSER	FUEL DISPENSER
38283	WILMINGTON FABRICATORS INC	235 ANDOVER ST	WILMINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE

UNDERGROUND STORAGE TANKS WITHIN SALEM/BEVERLY WATER SUPPLY PROTECTION AREAS AND IPSWICH RIVER WATERSHED

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
BEVERLY TEXACO	44 DODGE ST	BEVERLY	GAS STATION	3
CENTERVILLE SERVICE CENTER	443 ESSEX ST	BEVERLY	GAS STATION	4
GENERAL AVIATION SERVICES TANK	HENDERSON RD	BEVERLY	AIRPORT	1
GTE SERVICE CORP	HENDERSON RD	BEVERLY	AIRCRAFT OWNER	3
HESS	38 ENON ST	BEVERLY	GAS STATION	3
SEWER PUMPING STATION	END OF ROBINSON RD	BEVERLY	MUNICIPAL	1
GASOLINE MERCHANTS INC	SALEM ST & ROUTE 125	ANDOVER	GAS STATION	3
BOXFORD COMMUNITY STORE INC	7 ELM ST	BOXFORD	GAS STATION	2
BURLWOOD REALTY CORP	11 GRANT AVE	BURLINGTON	OTHER	1
SHELL SERVICE STATION #137722	198 CAMBRIDGE ST	BURLINGTON	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
TOWN OF BURLINGTON	29 CENTER ST	BURLINGTON	MUNICIPAL	2
7-ELEVEN	237 MAIN ST	NORTH READING	GAS STATION	1
JOHN M ROSS & SON INC	50 BUXTON RD	DANVERS	CEMETERY	1
MOBIL #310	431 NEWBURY ST	DANVERS	GAS STATION	4
NORTH SHORE RADIOLOGICAL ASSOC	344 ANDOVER ST	DANVERS	OTHER	1
TOSCO EXXON #2634624	435 NEWBURY ST	DANVERS	GAS STATION	3
CUMBERLAND FARMS #2092	66 TURNPIKE RD	IPSWICH	GAS STATION	3
BOSTIK INC	211 BOSTON ST	MIDDLETON	INDUSTRIAL	21
LOU'S SERVICE CENTER	223 MAPLE ST	MIDDLETON	GAS STATION	2
M W GAS	73 N MAIN ST	MIDDLETON	GAS STATION	3
PUMP N PANTRY	265 S MAIN ST	MIDDLETON	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
RICHDALE STORE #73	28 S MAIN ST	MIDDLETON	GAS STATION	3
TOSCO EXXON #2705807	4 S MAIN ST	MIDDLETON	GAS STATION	3
A L PRIME ENERGY INC	1725 TURNPIKE RD	NORTH ANDOVER	GAS STATION	3
GETTY STATION #30561	785 TURNPIKE ST	NORTH ANDOVER	GAS STATION	2
MASSACHUSETTS ELECTRIC CO	1101 TURNPIKE ST	NORTH ANDOVER	UTILITIES	2
7-ELEVEN	237 MAIN ST	NORTH READING	GAS STATION	2
BOBCAT OF BOSTON INC	20 CONCORD ST	NORTH READING	VEHICLE DEALER	1
LILY TRUCK LEASING CORP	84 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	2
M H AUTO SERVICE INC	1 WASHINGTON ST	NORTH READING	GAS STATION	3
MOBIL	160 PARK AVE	NORTH READING	GAS STATION	3
NEW ENGLAND MOTOR FREIGHT	90 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
NORTH READING'S BEST	142 MAIN ST	NORTH READING	GAS STATION	3
NORTH READING TEXACO	231 MAIN ST	NORTH READING	GAS STATION	3
ROADWAY EXPRESS INC	95 CONCORD ST	NORTH READING	TRUCK/TRANSPORT	2
TEMPLE OIL SERVICE	290 MAIN ST	NORTH READING	GAS STATION	2
THOMSON COUNTRY CLUB	20 ELM ST	NORTH READING	OTHER	2
ANTOINES SERVICE INC	480 LOWELL ST	PEABODY	GAS STATION	3
GAETA TOWING SERVICES INC	136 NEWBURY ST	PEABODY	GAS STATION	2
JHK INC - J & H AUTO/TRUCK REPAIR	129 NEWBURY ST	PEABODY	GAS STATION	2
LAKE STREET CITGO	26 LAKE ST	PEABODY	GAS STATION	4
SHELL SERVICE STATION 22060860206	468 LOWELL ST	PEABODY	GAS STATION	5
SHELL SERVICE STATION 22060860404	14 NEWBURYPORT TURNPIKE	PEABODY	GAS STATION	4

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
STADIUM MOBIL MART	545-547 LOWELL ST	PEABODY	GAS STATION	5
SUNOCO #0495-7957	144 NEWBURY ST	PEABODY	GAS STATION	6
MASS DPW MAINT DEPOT	CAUSEWAY RD	READING	STATE	2
MOBIL	1330 MAIN ST	READING	GAS STATION	5
READING GLOBAL	1337 MAIN ST	READING	GAS STATION	3
SANBORN HILL SERVICE STATION	1462 MAIN ST	READING	GAS STATION	3
SILVA TIRE DEPOT INC	158 HAVERHILL RD	TOPSFIELD	GAS STATION	3
TOPSFIELD POLICE DEPT	210 BOSTON ST	TOPSFIELD	OTHER	1
TURNPIKE SERVICES II INC	368 BOSTON ST	TOPSFIELD	GAS STATION	4
TOWN OF WENHAM HIGHWAY DEPT.	91 GRAPEVINE RD	WENHAM	MUNICIPAL	2
BELL ATLANTIC	408 MAIN ST	WILMINGTON	UTILITIES	1

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	MUNICIPAL	1
DYNAMICS RESEARCH CORP	50 CONCORD ST	WILMINGTON	OTHER	1
EXXONMOBIL OIL CORPORATION	316 LOWELL ST	WILMINGTON	GAS STATION	4
FRED'S SERVICE CENTER	324 MAIN ST	WILMINGTON	GAS STATION	1
HESS STATION	273 MAIN ST	WILMINGTON	GAS STATION	3
JOE BARRY OIL INC	312 MAIN ST	WILMINGTON	PETROLEUM DISTRIBUTOR	3
NEORESINS INC	730 MAIN ST	WILMINGTON	INDUSTRIAL	6
R & V REALTY TRUST	360 MIDDLESEX AVE	WILMINGTON	GAS STATION	3
RT 38 GAS AND SERVICE	603 MAIN ST	WILMINGTON	GAS STATION	4
SHELL SERVICE STATION	361 MIDDLESEX AVE	WILMINGTON	GAS STATION	4
SHELL SERVICE STATION	586 MAIN ST & LOWELL	WILMINGTON	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
TEXTRON SYSTEMS CORP	201 LOWELL ST	WILMINGTON	INDUSTRIAL	3
TOWN MARKET CITGO	490 MAIN ST	WILMINGTON	GAS STATION	3

FOR MORE INFORMATION ON UNDERGROUNDWATER DISCHARGE STORAGE TANKS, VISIT THE MASSACHUSETTS DEPARTMENT OF FIRE SERVICES WEB SITE: [HTTP://WWW.STATE.MA.US/DFS/UST/USTHOME.HTM](http://www.state.ma.us/dfs/ust/usthome.htm)

NOTE: THIS APPENDIX INCLUDES ONLY THOSE FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA(S) THAT MEET STATE REPORTING REQUIREMENTS AND REPORT TO THE APPROVED APPROPRIATE AGENCIES. ADDITIONAL FACILITIES LOCATED WITHIN THE WATER SUPPLY PROTECTION AREA(S) SHOULD BE CONSIDERED IN LOCAL DRINKING WATER SOURCE PROTECTION PLANNING.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Salem/Beverly Water Supply Protection Areas and Ipswich River Watershed

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0000230	L P Henderson Road	Beverly	Oil
3-0000231	L P Henderson Road	Beverly	Oil
3-0000235	L P Henderson Road	Beverly	--
3-0003597	38 Enon Street	Beverly	--
3-0000008	Andover Bypass Rte 125	Andover	--
3-0001813	Route 125 North Andover Bypass	Andover	Oil
3-0011228	4 Brookfield Rd	Burlington	Oil
3-0003711	200 North St	Danvers	Oil

RTN	Release Site Address	Town	Contaminant Type
3-0014696	200 North St	Danvers	Hazardous Material
3-0017065	562 Maple St	Danvers	Oil and Hazardous Material
3-0001494	Boston St	Middleton	Oil
3-0001505	265 South Main St	Middleton	Oil
3-0001941	234 South Main St	Middleton	Oil
3-0004485	North Main St Adj I95	Middleton	Oil
3-0006026	24 Hilldale Ave	Middleton	Oil
3-0010212	81 North Main St	Middleton	Oil and Hazardous Material
3-0014402	29 South Main St	Middleton	Oil
3-0015046	North Main St	Middleton	Oil
3-0016824	6-12 Birch Rd	Middleton	Oil
3-0000692	60 Concord St	North Reading	--
3-0002363	95 Concord St	North Reading	Oil
3-0002584	70 Concord St	North Reading	--
3-0002804	5 Hallberg Park	North Reading	--
3-0004007	Cedar St	North Reading	Oil
3-0004481	1 Boxwood Rd	North Reading	Oil
3-0017390	80 Concord St	North Reading	Hazardous Material
3-0001565	144 Newbury St	Peabody	Oil
3-0006062	6 Bow St	Peabody	--
3-0014805	104 Newbury St	Peabody	Oil
3-0019352	128 Newbury St	Peabody	Hazardous Material
3-0013565	Causeway St/Ma Hwy Dept	Reading	Oil and Hazardous Material
3-0004670	234 Boston Rd	Topsfield	Oil
3-0018082	210 Boston St	Topsfield	Oil
3-0000471	51 Eames St	Wilmington	Oil
3-0000518	50 Fordham Rd	Wilmington	Oil

RTN	Release Site Address	Town	Contaminant Type
3-0000625	I-93 Lowell St	Wilmington	--
3-0000776	324 Main St	Wilmington	--
3-0001728	945 Main St	Wilmington	Oil
3-0001916	101 Main St	Wilmington	Oil
3-0001973	804 Woburn St	Wilmington	Oil
3-0002889	273 Main St	Wilmington	--
3-0003548	603 Main St	Wilmington	--
3-0003766	100 Ainsworth Rd	Wilmington	Oil
3-0004022	103 Main St	Wilmington	--
3-0004170	319a Andover St	Wilmington	Oil
3-0012586	586 Main St	Wilmington	Oil
3-0013922	312 Main St	Wilmington	Oil
3-0014811	315-319 Main St	Wilmington	Hazardous Material
3-0014814	255 Andover St	Wilmington	Hazardous Material
3-0015247	1 Burlington Ave	Wilmington	Hazardous Material
3-0017097	80 Industrial Way	Wilmington	Hazardous Material
3-0019380	80 Industrial Way	Wilmington	Hazardous Material
3-0019651	212 Main St	Wilmington	Oil and Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Salisbury Water Supply Company

What is SWAP?

The Source Water Assessment Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Salisbury Water Supply Company c/o Pennichuck Water Works, Inc.
<i>PWS Address</i>	4 Water St./P.O. Box 448
<i>City/Town</i>	Nashua, NH 03061-0448
<i>PWS ID Number</i>	3259000
<i>Local Contact</i>	Bernard J. Rousseau
<i>Phone Number</i>	(603) 882-5191

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

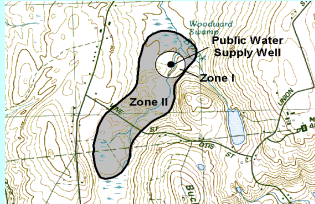
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

Zone II #: 489

Susceptibility: High

Well Names	Source IDs
Well #5	3259000-04G
Well #6	3259000-05G

Zone II #: 523

Susceptibility: Moderate

Well Names	Source IDs
Well #7	3259000-06G

The wells for the Salisbury Water Supply are located within two separate water supply protection areas, with portions of Zone II #523 extending into the town of Seabrook, New Hampshire. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone IIs for Salisbury are a mixture primarily of residential and forested land uses, with a small portion consisting of industrial, commercial, and agricultural (refer to attached map for details).

Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous Materials Storage and Use
3. Transportation Corridor
4. Residential Land Uses
5. Oil or Hazardous Material Contamination Sites
6. Comprehensive Wellhead Protection Planning

The ranking of susceptibility to contamination for Well #5 and Well #6 Zone II is high, based on the presence of at least one high threat land use within the water supply protection area, as seen in Table 2. The ranking of susceptibility to contamination for Well #7 Zone II is medium, based on the presence of at least one medium threat land use within the water supply protection area, as seen in Table 2.

1. Activities in Zone Is – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the

(Continued on page 3)

(Continued from page 2)

Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The following non-water supply activities occur in the Zone I of Salisbury's wells:

Well #6: There is a gravel operation, a portion of Route 95, and a portion of a home within the Zone I of this well.

Zone I Recommendations:

- ✓ Coordinate efforts with landowners to identify the location of septic systems, and if needed, determine the feasibility of relocating septic systems outside of the Zone I.
- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ Agreement Options - Attempt to obtain a *Memorandum of Understanding*. Memorandum of Understanding (MOU) is an agreement between the landowner and public water supplier in which the landowner agrees not to engage in specific threatening activities. The MOU should be specific to the land use or activity. For instance, if the land is residential with a septic system the owner could agree not to place chemicals, petroleum products, or other hazardous or toxic substances, including septic system cleaners, into the septic system, and that the system will be pumped at a specific frequency. The application of lawn care chemicals could also be restricted. Understanding how activity threatens drinking water quality is an important component of developing an effective MOU.
- ✓ Refer to recommendations under Key Land Uses and Protection Issues for Transportation Corridors for the portion of Route 95 that is in the Zone I.

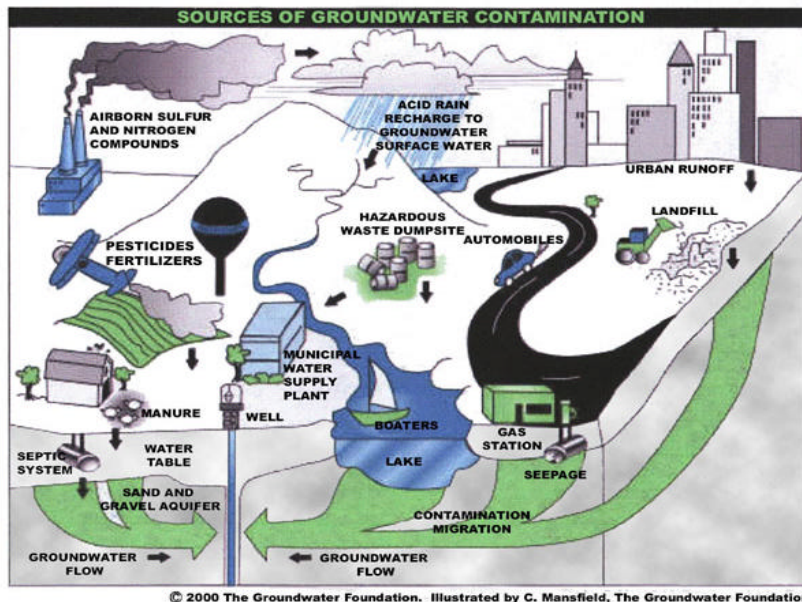
Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

2. Hazardous Materials Storage and Use – Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs). If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.



Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP's for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.

- ✓ Educate local businesses on Massachusetts floordrain requirements. See brochure “Industrial Floor Drains” for more information.

3. Transportation Corridors - Route 95 runs through a portion of the Zone I for Well #6, and the Zone II for Well #5 and Well #6. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catchbasins.

Transportation Corridor Recommendations:

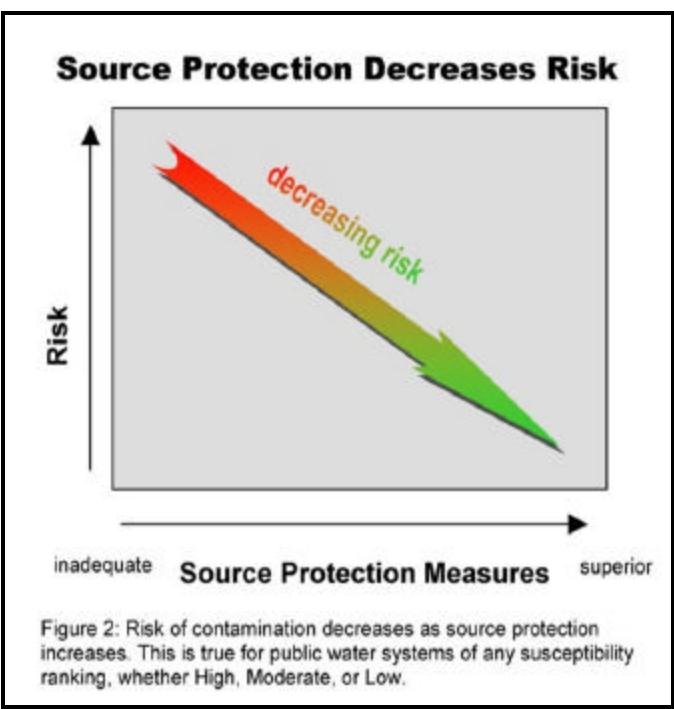
- ✓ Identify stormwater drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge stormwater outside of the Zone I and Zone II.
- ✓ Work with the State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Work with State emergency response teams to ensure that any spills within the Zone I and Zone II can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with city officials to investigate mapping options such as those in the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

4. Residential Land Uses – Approximately 61% of the combined Zone IIs consist of residential areas, most of which are still served by private septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.



- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II #/ Source ID#	Potential Source of Contamination
Commercial				
Body Shops	1	H	489	Improper management of vehicle paints, solvents, and primer products
Gas Stations	1	H	489	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	1	H	489	Spills, leaks, or improper handling of automotive fluids, and solvents
Bus and Truck Terminals	1	H	489	Spills, leaks, or improper handling of fuels and maintenance chemicals
Repair Shops (Engine, Appliances, Etc.)	1	H	489	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Sand And Gravel Mining/Washing	3	M	489, 523	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Residential				
Fuel Oil Storage (at residences)	numerous	M	489, 523	Spills, leaks, or improper handling of fuel oil
Lawn Care/ Gardening	numerous	M	489, 523	Over-application or improper storage and disposal of pesticides
Septic Systems/ Cesspools	numerous	M	489, 523	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous				
Aboveground Storage Tanks	1	M	489	Spills, leaks, or improper handling of materials stored in tanks
Oil or Hazardous Material Sites	1	--	489	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character.
Small quantity hazardous waste	1	M	489	Spills, leaks, or improper handling or storage of hazardous materials and waste

Activities	Quantity	Threat*	Zone II #/	Potential Source of Contamination
Miscellaneous				
Stormwater Drains/ Retention Basins	numerous	L	489	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	1	M	489	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	5	H	489	Spills, leaks, or improper handling of stored materials
<p>Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>? THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

- ✓ Promote BMPs for stormwater management and pollution controls.
- ✓ railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

5. Presence of Oil or Hazardous Material Contamination Sites – The Zone II for the Well #5 and Well #6 contains a DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 3-0019369. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

6. Protection Planning – Salisbury does not have water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21 (2). Occasionally update local controls to meet changes in current regulations. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased groundwater monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

(Continued from page 6)

- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination.

Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

(Continued on page 9)

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES (Well #5, and Well #7)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Well #6)	To the extent possible, remove non-water supply activities from each Zone I to comply with DEP's Zone I requirements. Investigate options for gaining ownership or control of the Zone I for groundwater sources.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988, or at http://www.neruralwater.org
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas. Pay special attention to fenced areas, lighting, and signs of forced entry into well houses and pump stations.
Are water supply-related activities the only activities within the Zone I?	YES (Well #5, and Well #7)	Continue monitoring for non-water supply activities in Zone Is.
	NO (Well #6)	Monitor non-water supply activities in Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO	Work with Planning Board to adopt land use controls that meet 310 CMR 22.21(2). Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	NO	Request that municipal officials in Seabrook, New Hampshire develop land use restrictions that meet 310 CMR 22.21(2).
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Continue with Salisbury's inspections, and enforcement of local bylaws. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

(Continued from page 7)

The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier and town boards.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN SALISBURY'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
335734	R J TINDLE	122 RABBIT ROAD	SALISBURY	HANDLER	SMALL QUANTITY GENERATOR
335734	R J TINDLE	122 RABBIT ROAD	SALISBURY	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
126587	SALISBURY PUMP N PANTRY	66 MAIN STREET	SALISBURY	FUEL DISPENSER	FUEL DISPENSER

UNDERGROUND STORAGE TANKS WITHIN SALISBURY'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
SALISBURY PUMP N PANTRY	66 MAIN STREET	SALISBURY	GAS STATION	8000	GASOLINE
SALISBURY PUMP N PANTRY	66 MAIN STREET	SALISBURY	GAS STATION	8000	GASOLINE
SALISBURY PUMP N PANTRY	66 MAIN STREET	SALISBURY	GAS STATION	6000	GASOLINE
SALISBURY PUMP N PANTRY	66 MAIN STREET	SALISBURY	GAS STATION	6000	DIESEL
SALISBURY PUMP N PANTRY	66 MAIN STREET	SALISBURY	GAS STATION	500	FUEL OIL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Salisbury Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0019369	66 Main Street	Salisbury	Oil And Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Woodhaven Elderly Housing

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Woodhaven Elderly Housing
<i>PWS Address</i>	Village Way/P.O. Box 186
<i>City/Town</i>	Sherborn, Massachusetts
<i>PWS ID Number</i>	3269002
<i>Local Contact</i>	John Avery
<i>Phone Number</i>	(508) 655-3984

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

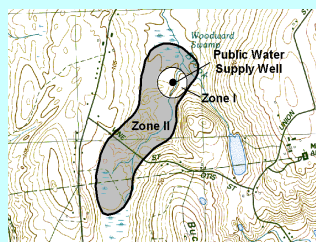
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Attachments

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Zone II #: 580

Susceptibility: High

Well Names	Source IDs
Well #1	3269002-01G
Well #2	3269002-02G
Well #4	3269002-03G

The Woodhaven Elderly Housing Wells are located in the following areas: Well #1 is located on the northwest corner of the northern-most residential building; Well #2 is located on the southwest corner of the northern-most residential building; and, Well #4 is located in the southwest corner of the south parking lot. All three wells have a Zone I radius of 100 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The Zone II for the Woodhaven Elderly Housing Wells is a mixture primarily of residential, forest, and commercial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Residential Land Uses
3. Transportation Corridors
4. Oil or Hazardous Material Sites
5. Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone Is – The Zone I for each of the wells is a 100 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for Well #1, #2, and #4 are owned by the public water system, however, there are non-water supply activities occurring in each Zone I. Only water supply activities are allowed in the Zone I. The Zone I for Well #1 and #2 contain portions of the access road, and Well #4 contains a portion of the south parking lot.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.

- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Residential Land Uses – Approximately 25% of the Zone II consists of residential areas. None of the residences have public sewers, and so all use on-site septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

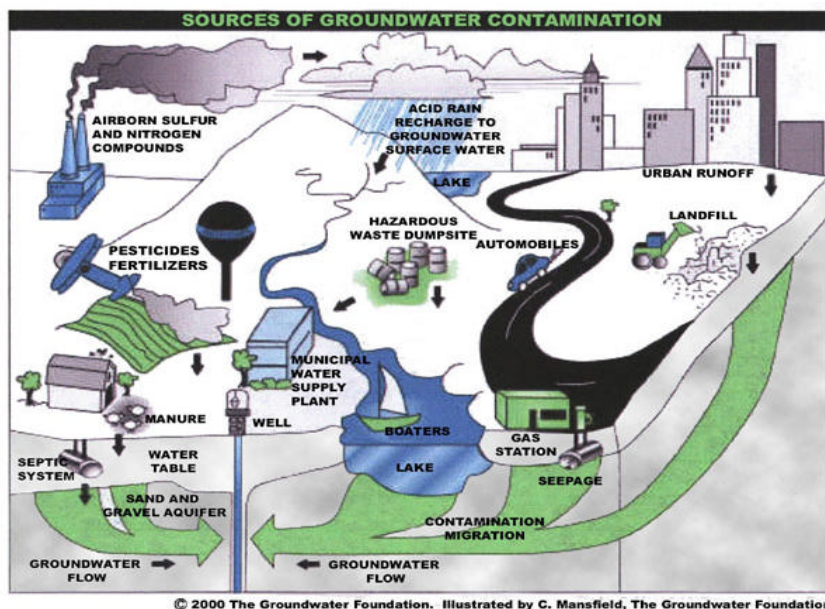
- ◆ **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- ◆ **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- ◆ **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- ◆ **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Work with the Town to educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.

- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Transportation Corridors - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.



**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include substances from automotive leaks, maintenance, washing, or accidents.

Railroad tracks run directly through the Zone II. Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals.

Transportation Corridor Recommendations:

- ✓ Regularly inspect Zone II for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

4. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/ or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0002394 and 3-0014785. Refer to the attached map and Appendix C for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

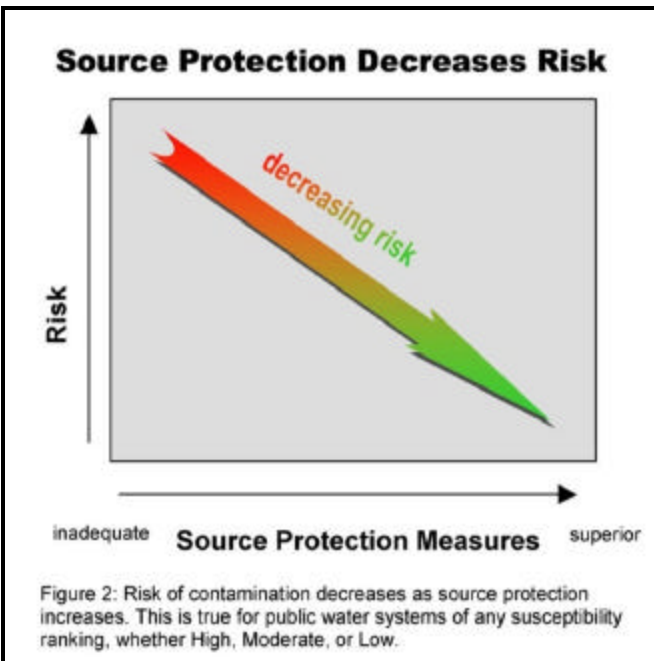
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

5. Protection Planning – The Town of Sherborn does not have water supply protection controls that meet DEP's Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan".
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Other land uses and activities within the Zone II are listed in Table 2. Refer to Table 2 for more information about these land uses.



Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. Implementing protection measures and best management practices (BMPs) will reduce the

(Continued on page 6)

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Potential Source of Contamination
Agricultural			
Fertilizer Storage or Use	1	M	Leaks, spills, improper handling, or over-application of fertilizers
Manure Storage or Spreading	1	H	Improper handling of manure (microbial contaminants)
Pesticide Storage or Use	1	H	Leaks, spills, improper handling, or over-application of pesticides
Commercial			
Service Stations/ Auto Repair Shops	3	H	Spills, leaks, or improper handling of automotive fluids, and solvents
Cemeteries	2	M	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Dry Cleaners	1	H	Spills, leaks, or improper handling of solvents and wastes
Medical Facilities	1	M	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes
Railroad Tracks and Yards	1	H	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Residential			
Fuel Oil Storage (at residences)	Numerous	M	Spills, leaks, or improper handling of fuel oil
Lawn Care / Gardening	Numerous	M	Over-application or improper storage and disposal of pesticides and fertilizers
Septic Systems / Cesspools	Numerous	M	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous			
Oil or Hazardous Material Sites	2	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.

Activities	Quantity	Threat*	Potential Source of Contamination
Miscellaneous			
Stormwater Drains/ Retention Basins	Several	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	2	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	3	H	Spills, leaks, or improper handling of stored materials
<p>Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>			

(Continued from page 4)

Woodhaven Elderly Housing Wells' susceptibility to contamination. Woodhaven Elderly Housing should review and adopt the key recommendations above and the following:

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone Is regularly, and when feasible, remove any non-water supply activities.
- ✓ Organize a wellhead protection committee comprised of stakeholders from both the public and private sectors to implement the Wellhead Protection Plan. and recommendations from the Wellhead Protection Project.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Locate stormwater drainage in your Zone Is and Zone IIs and cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Attachments

Protection Recommendations

- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with “Public Drinking Water Supply” Signs?	NO	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue routine inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Continue monitoring non-water supply activities in Zone Is for potential impact on wells .
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21 (2)?	NO	The Town of Sherborn adopted a Groundwater Protection General By-law in April 1992, and Established a Water Supply Protection District in 1995. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	N/A	
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Coordinate efforts with the Town of Sherborn to develop a comprehensive wellhead protection plan. Follow “Developing a Local Wellhead Protection Plan” available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal “Emergency Response Plan” to deal with spills or other emergencies?	Unknown	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	Unknown	Establish committee; include representatives from citizens’ groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	Unknown	Local fire department conducts a hazardous materials inspection program. For more guidance see “Hazardous Materials Management: A Community's Guide” at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	NO	Aim wellhead protection efforts at residential and commercial uses within the Zone II.

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APPENDIX A: DEP PERMITTED FACILITIES WITHIN WOODHAVEN ELDERLY HOUSING'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
135838	SHERBORN GULF	21 SOUTH MAIN ST	SHERBORN	HANDLER	VERY SMALL QUANTITY GENERATOR
135838	SHERBORN AUTO CARE	21 SOUTH MAIN ST	SHERBORN	FUEL DISPENSER	FUEL DISPENSER

UNDERGROUND STORAGE TANKS WITHIN WOODHAVEN ELDERLY HOUSING'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
SHERBORN AUTO CARE CORP	21 S MAIN ST	SHERBORN	Gas Station	10000	Gasoline
SHERBORN AUTO CARE CORP	21 S MAIN ST	SHERBORN	Gas Station	10000	Gasoline
SHERBORN AUTO CARE CORP	21 S MAIN ST	SHERBORN	Gas Station	5000	GASOLINE

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Woodhaven Elderly Housing Water Supply Protection Area

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0002394	North Main Street	Sherborn	Hazardous Material
3-0014785	26 North Main Street	Sherborn	Oil and Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Leland Farms

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Leland Farms
<i>PWS Address</i>	Leland Drive
<i>City/Town</i>	Sherborn, Massachusetts
<i>PWS ID Number</i>	3269028
<i>Local Contact</i>	Robert Reed
<i>Phone Number</i>	(508) 651-7850

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

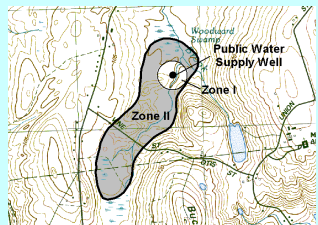
Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Attachments

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Section 1: Description of the Water System

<i>Zone II #:</i> 580		<i>Susceptibility:</i> High	
<i>Well Names</i>		<i>Source IDs</i>	
Well		3269028-01G	

The Leland Farms Well is located at the southeast corner of the Woodhaven Elderly Housing south parking lot. This well has a Zone I radius of 191 feet. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The Zone II for the Leland Farms Well is a mixture primarily of residential, forest, and commercial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Residential Land Uses
3. Transportation Corridors
4. Oil or Hazardous Material Sites
5. Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone Is – Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for Leland Farms Well is owned by the public water system, however, there are non-water supply activities occurring in the Zone I such as residential parking areas.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Residential Land Uses – Approximately 25% of the Zone II consists of residential areas. None of the residences have public sewers, and so all use on-site septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

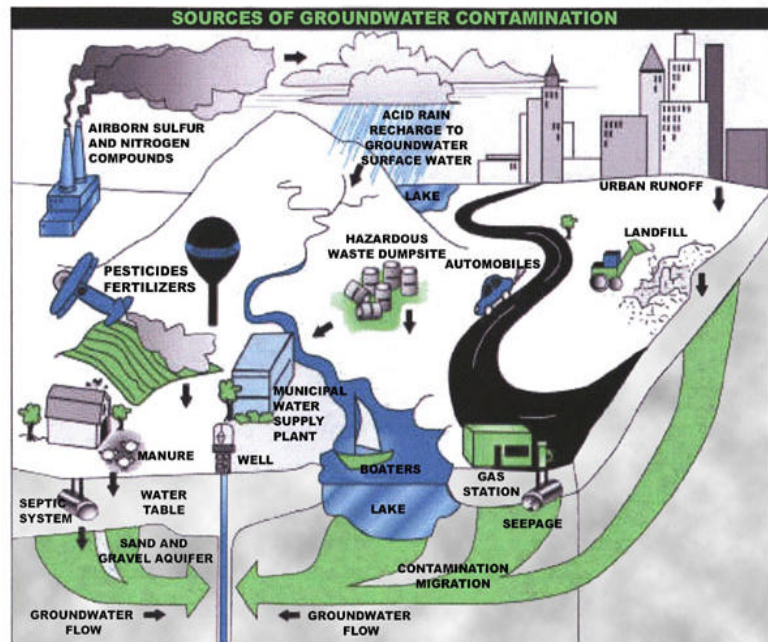
- ◆ **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- ◆ **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- ◆ **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- ◆ **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Work with the Town to educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Transportation Corridors - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include substances from automotive leaks, maintenance, washing, or accidents.



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**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Railroad tracks run directly through the Zone II. Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals.

Transportation Corridor Recommendations:

- ✓ Regularly inspect watershed for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.

- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

4. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0002394 and 3-0014785. Refer to the attached map and Appendix C for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

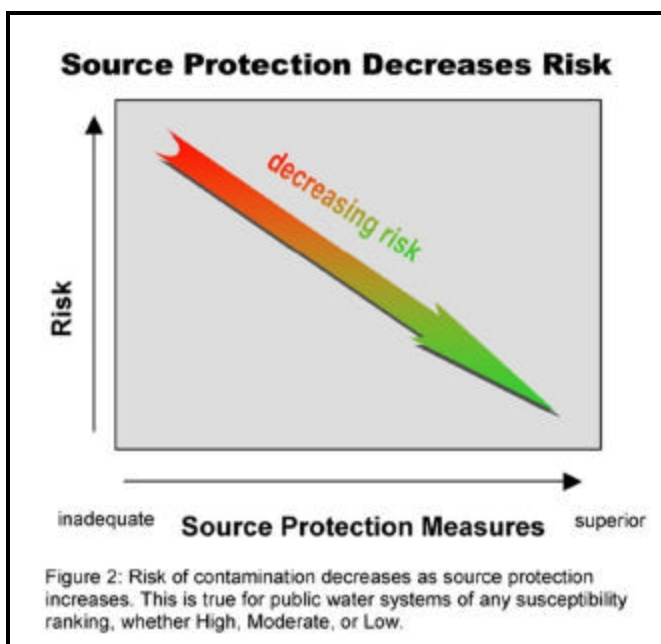
5. Protection Planning – The Town of Sherborn does not have water supply protection controls that meet DEP's Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan".
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Other land uses and activities within the Zone II are listed in Table 2. Refer to Table 2 for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.



Section 3: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system Zone II contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. Implementing protection measures and best management practices (BMPs) will reduce the Leland Farms Well's susceptibility to contamination. Leland Farms should review and adopt the key recommendations above and the following:

Source Protection Recommendations:

- To better protect the sources for the future:
- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
 - ✓ Organize a wellhead protection committee comprised of stakeholders from both the public and

(Continued on page 6)

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Potential Source of Contamination
Agricultural			
Fertilizer Storage or Use	1	M	Leaks, spills, improper handling, or over-application of fertilizers
Manure Storage or Spreading	1	H	Improper handling of manure (microbial contaminants)
Pesticide Storage or Use	1	H	Leaks, spills, improper handling, or over-application of pesticides
Commercial			
Service Stations/ Auto Repair Shops	3	H	Spills, leaks, or improper handling of automotive fluids, and solvents
Cemeteries	2	M	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Dry Cleaners	1	H	Spills, leaks, or improper handling of solvents and wastes
Medical Facilities	1	M	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes
Railroad Tracks and Yards	1	H	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Residential			
Fuel Oil Storage (at residences)	Numerous	M	Spills, leaks, or improper handling of fuel oil
Lawn Care / Gardening	Numerous	M	Over-application or improper storage and disposal of pesticides and fertilizers
Septic Systems / Cesspools	Numerous	M	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous			
Oil or Hazardous Material Sites	2	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.

Activities	Quantity	Threat*	Potential Source of Contamination
Miscellaneous			
Stormwater Drains/ Retention Basins	Several	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	2	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	3	H	Spills, leaks, or improper handling of stored materials
<p>Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>			

(Continued from page 4)

private sectors to implement the Wellhead Protection Plan. and recommendations from the Wellhead Protection Project.

- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Locate stormwater drainage in your Zone I and Zone II and cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection area to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department’s Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Attachments

Protection Recommendations

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- D. Additional Documents on Source Protection

For More Information

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Copies of this report have been provided to the public water supplier, board of health, and the town.

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with “Public Drinking Water Supply” Signs?	NO	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue routine inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Continue monitoring non-water supply activities in Zone I for potential impact on well.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21 (2)?	NO	The Town of Sherborn adopted a Groundwater Protection General By-law in April 1992, and Established a Water Supply Protection District in 1995. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	N/A	
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Coordinate efforts with the Town of Sherborn to develop a comprehensive wellhead protection plan. Follow “Developing a Local Wellhead Protection Plan” available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal “Emergency Response Plan” to deal with spills or other emergencies?	Unknown	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	Unknown	Establish committee; include representatives from citizens’ groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	Unknown	Local fire department conducts a hazardous materials inspection program. For more guidance see “Hazardous Materials Management: A Community's Guide” at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	NO	Aim wellhead protection efforts at residential and commercial uses within the Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN LELAND FARM'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
135838	SHERBORN GULF	21 SOUTH MAIN ST	SHERBORN	HANDLER	VERY SMALL QUANTITY GENERATOR
135838	SHERBORN AUTO CARE	21 SOUTH MAIN ST	SHERBORN	FUEL DISPENSER	FUEL DISPENSER

UNDERGROUND STORAGE TANKS WITHIN LELAND FARM'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
SHERBORN AUTO CARE CORP	21 S MAIN ST	SHERBORN	Gas Station	10000	Gasoline
SHERBORN AUTO CARE CORP	21 S MAIN ST	SHERBORN	Gas Station	10000	Gasoline
SHERBORN AUTO CARE CORP	21 S MAIN ST	SHERBORN	Gas Station	5000	GASOLINE

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX C – Table of Tier Classified Oil and/or Hazardous Material Sites within Leland Farms Water Supply Protection Areas

DEP's datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP's Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP's Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state's OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0002394	North Main Street	Sherborn	Hazardous Material
3-0014785	26 North Main Street	Sherborn	Oil and Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Sudbury Water District

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Sudbury Water District
<i>PWS Address</i>	199 Raymond Road/P.O. Box 111
<i>City/Town</i>	Sudbury, Massachusetts 01776
<i>PWS ID Number</i>	3288000
<i>Local Contact</i>	Dick Carroll - Superintendent
<i>Phone Number</i>	(978) 443-6602

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

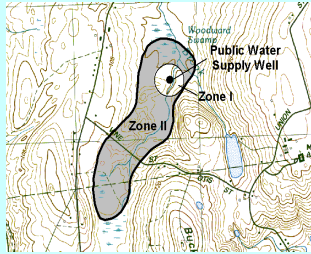
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 147

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
GP Well #2A	3288000-02G
GP Well #4	3288000-04G
GP Well #6	3288000-06G
GP Well #7	3288000-07G
GP Well #9	3288000-09G

Zone II #: 154

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
GP Well #3	3288000-03G
GP Well #8	3288000-08G
GP Well #10	3288000-10G

Zone II #: 187

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
GP Well #5	3288000-05G

The wells for the Sudbury Water District are located within three separate water supply protection areas, with portions extending into the towns of Concord, and Framingham. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone IIs for Sudbury are a mixture primarily of residential, forest, and wetlands land uses, with a small portion consisting of other uses such as recreation, agriculture, commercial, light industry, and mining (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous materials storage and use
3. Nurseries and Agriculture
4. Residential land uses
5. Federal Superfund Site and Oil or Hazardous Material Contamination Sites
6. Comprehensive wellhead protection planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

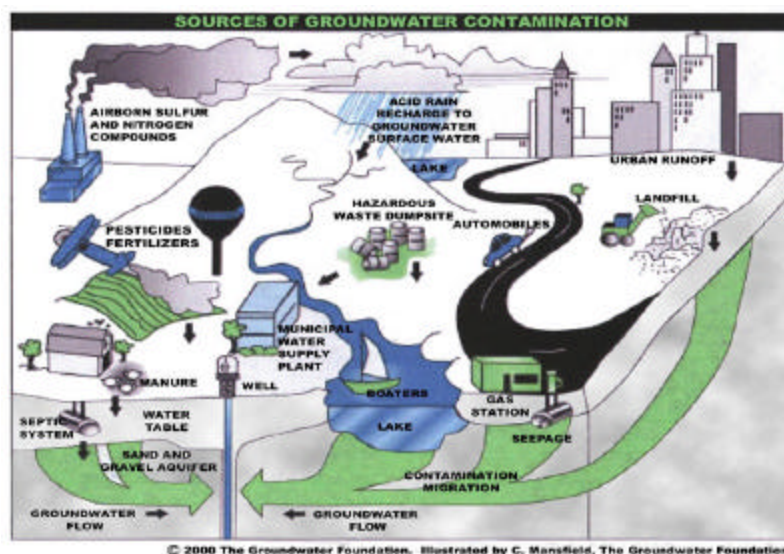
1. Activities in Zone I – The Zone I for each well is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes, recreation fields, and public roads. The following non-water supply activities occur in the Zone I of some of the system's wells:

Well #5 – Based on the SWAP map for Well #5, there appears to be agriculture in the extreme western portion of the Zone I. Also, North Road cuts through the northern section of the Zone I.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from each Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Hazardous Materials Storage and Use – Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground and Aboveground storage tanks (USTs and ASTs). If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.



Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP's for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

- ✓ Educate local businesses on Massachusetts floordrain requirements. See brochure “Industrial Floor Drains” for more information.

3. Plant Nurseries and Agricultural Activities – Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If not contained or applied properly, animal waste from barnyards, manure pits and field application are potential sources of contamination to ground and surface water. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Plant Nurseries and Agricultural Activities Recommendation:

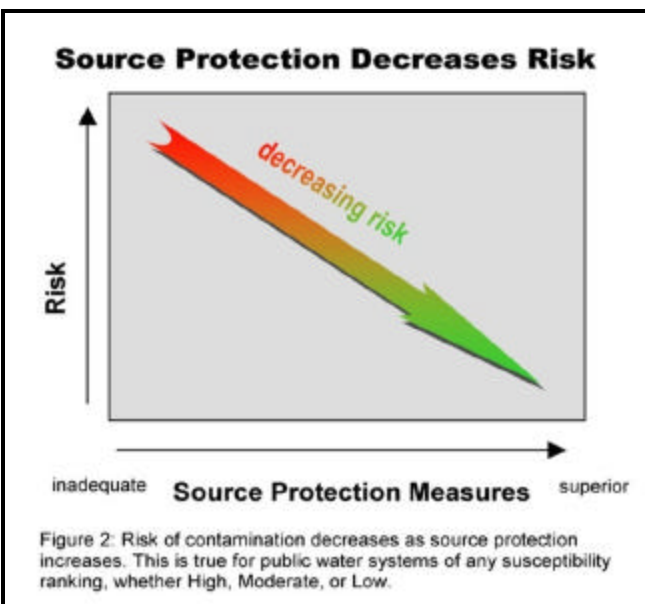
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ Encourage the farmers and nursery managers to incorporate an **Integrated Pest Management (IPM)** approach into their pest management program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other agricultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote **Best Management Practices (BMPs)** for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Work with nurseries and farmers to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

4. Residential Land Uses – If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they could be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.



- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Agricultural				
Fertilizer Storage or Use	3	M	147, 187	Leaks, spills, improper handling, or over-application of fertilizers
Nurseries	3	M	147, 187	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Commercial				
Body Shops	3	H	147	Vehicle paints, solvents, and primer products: improper management
Gas Stations	1	H	147	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	1	H	147	Automotive fluids, and solvents: spills, leaks, or improper handling
Golf Courses	1	M	187	Over-application or improper handling of fertilizers or pesticides
Sand And Gravel Mining/Washing	1	M	154	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial				
Electronics/Electrical Manufacturers	1	H	147	Spills, leaks, or improper handling or storage of chemicals and process wastes
Fuel Oil Distributors	1	H	147	Spills, leaks, or improper handling or storage of fuel oil
Industry/Industrial Parks	1	H	187	Spills, leaks, or improper handling or storage of industrial chemicals and metals
Residential				
Fuel Oil Storage (at residences)	Numerous	M	147, 154, 187	Fuel oil: spills, leaks, or improper handling
Lawn Care/ Gardening	Numerous	M	147, 154, 187	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Numerous	M	147, 154, 187	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous				
Aquatic Wildlife	Numerous	L	147	Microbial contaminants
Composting Facilities	1	L	147	Storage and improper handling of organic material, animal waste, and runoff

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Miscellaneous				
Large Quantity Hazardous Waste Generators	1	H	147	Spills, leaks, or improper handling or storage of hazardous materials and waste
Military Facilities (Past And Present)	1	H	154	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump sites
Oil or Hazardous Material Sites	10	----	147	Oil or hazardous materials and waste: spills, leaks, or improper handling or storage
Schools, Colleges, and Universities	1	M	154	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small quantity hazardous waste generators	3	M	147	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Numerous	L	147, 154	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Superfund Sites	1	H	154	Spills, leaks, or improper handling or storage of oil or hazardous materials and waste
Transportation Corridors	1	M	147	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	19	H	147	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generator	9	L	147, 187	Hazardous materials and waste: spills, leaks, or improper handling or storage
Water Treatment Sludge Lagoon	1	M	154	Improper management of sludge and wastewater
Water Supply Protection Area % that is Sewered = <1%				
Notes:				
1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.				
2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.				
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.				
THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater				

5. Federal Superfund Site and Oil or Hazardous Material Contamination Site -The Zone II contains a United States Environmental Protection Agency (USEPA) Superfund Site that is associated with a DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 3-0000437, and a DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 3-0000074, 3-0002341, 3-0002423, 3-0003267, 3-0004202, 3-0004339, 3-0010592, 3-0014107, 3-0015951, and 3-0019550. Refer to the attached map and Appendix 3 for more information.

Federal Superfund Site and Oil or Hazardous Material Contamination Site Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known Superfund site and oil or hazardous material contamination site.

For more information refer to the attached map, Appendix C, and the Bureau of Waste Site Cleanup's website at <http://www.state.ma.us/dep/bwsc/sitelist.htm>

7. Protection Planning – The Town of Sudbury has water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- ❖ Adopting land use controls that meet DEP’s Drinking Water Regulations
- ❖ Partnering with the Town of Sudbury to study the feasibility of sewerage the commercial section of Route 20

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead Protection Plan.

Resources for Drinking Water Source Protection:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department’s Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased groundwater monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

Conclusions:

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	UNCERTAIN (Well #5)	Determine if agricultural activities are occurring in the Zone I, and to the extent possible, remove all non-water supply activities from each Zone I to comply with DEP's Zone I requirements. Investigate options for gaining ownership or control of the Zone I for these sources.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	UNCERTAIN	Monitor non-water supply activities in Zone Is, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town "Aquifer Protection District" bylaw meets DEP's best efforts for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	Unknown	Work with the towns of Concord and Framingham to develop land use restrictions that meet 310 CMR 22.21(2), and to include Wayland's Zone IIs in Sudbury's wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	YES	To have a well rounded committee include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN SUDBURY WATER SUPPLY PROTECTION AREAS

DEP Facility Number	Facility Name	Street Address	Town	Permitted Activity	Activity Class
132622	Cavicchio Greenhouse	110 Codjer Lane	Sudbury	Plant	Air Quality
132622	Cavicchio Loam Compost Site	200 Codjer Lane	Sudbury	Compost	Non-Notifier Solid Waste Facility That Is Subject To Regs. But Not Permitted
33073	Colonial Auto Of Sudbury	430 Boston Post Rd	Sudbury	Handler	Very Small Quantity Generator
33073	Colonial Auto Of Sudbury Inc	430 Boston Post Rd	Sudbury	Handler	Small Quantity Generator - Waste Oil/Pcbs Only
177203	Cumberland Gulf #201325	470 Boston Post Rd	Sudbury	Fuel dispenser	Fuel Dispenser
215006	Goodyear Auto Service	477 Boston Post Rd	Sudbury	Handler	Very Small Qty Generator Of Hazardous Waste
133800	JP Bartlett Co	578 Boston Post Rd	Sudbury	Plant	Air Quality
28451	Methods Machine Tools Inc	65 Union Ave	Sudbury	Handler	Small Quantity Generator
133801	Mosher Auto Body Inc	34 Station Rd	Sudbury	Handler	Very Small Quantity Generator
133801	Mosher Auto Body Inc	34 Station Rd	Sudbury	Handler	Very Small Quantity Generator - Waste Oil/Pcbs Only
130708	Raytheon Company Esq	528 Boston Post Rd	Sudbury	Handler	Large Quantity Generator
324854	Sequenom Inc	142-F North Road	Sudbury	Handler	Very Small Quantity Generator
35843	Station Road Auto Body & Garage Inc	40 Station Rd	Sudbury	Handler	Very Small Quantity Generator

DEP Facility Number	Facility Name	Street Address	Town	Permitted Activity	Activity Class
35843	Station Road Auto Body & Garage Inc	40 Station Rd	Sudbury	Handler	Very Small Quantity Generator - Waste Oil/Pcbs Only
133802	Sudbury Cleaners	428 Boston Post Rd	Sudbury	Handler	Small Quantity Generator
126438	Sudbury Mobil	432 Boston Post Rd.	Sudbury	Fuel dispenser	Fuel Dispenser
177914	Mobil Oil	900 Edgell Road	Framingham	Handler	Very Small Quantity Generator
177914	Mobil Oil	900 Edgell Road	Framingham	Handler	Very Small Quantity Generator - Waste Oil/Pcbs Only
126399	Nobscot Mobil Inc	900 Edgell Road	Framingham	Fuel Dispenser	Fuel Dispenser

Underground Storage Tanks Within Sudbury Water Supply Protection Areas

Facility Name	Address	Town	Description	Capacity (Gal)	Contents
Charles Precourt & Sons Inc.	46 Union Avenue	Sudbury		10000	Diesel
Cumberland Gulf #201325	470 Boston Post Road	Sudbury	Gas Station	8000	Gasoline
Cumberland Gulf #201325	470 Boston Post Road	Sudbury	Gas Station	8000	Gasoline
Cumberland Gulf #201325	470 Boston Post Road	Sudbury	Gas Station	8000	Gasoline
Sudbury Mobil	432 Boston Post Road	Sudbury	Service Station	10000	Gasoline
Sudbury Mobil	432 Boston Post Road	Sudbury	Service Station	10000	Gasoline
Sudbury Mobil	432 Boston Post Road	Sudbury	Service Station	6000	Gasoline
Sudbury Mobil	432 Boston Post Road	Sudbury	Service Station	550	Waste Oil
Sousa Citgo	475 Boston Post Road	Sudbury	Gas Station	10000	Gasoline

Facility Name	Address	Town	Description	Capacity (Gal)	Contents
Sousa Citgo	475 Boston Post Road	Sudbury	Gas Station	8000	Diesel
Sousa Citgo	475 Boston Post Road	Sudbury	Gas Station	5000	Gasoline
Sousa Citgo	475 Boston Post Road	Sudbury	Gas Station	5000	Gasoline
Sousa Citgo	475 Boston Post Road	Sudbury	Gas Station	5000	Gasoline
Sousa Citgo	475 Boston Post Road	Sudbury	Gas Station	5000	Gasoline
MOBIL	900 Edgell Road	Framingham	Gas Station	12000	Gasoline
MOBIL	900 Edgell Road	Framingham	Gas Station	10000	Gasoline
MOBIL	900 Edgell Road	Framingham	Gas Station	6000	Gasoline
MOBIL	900 Edgell Road	Framingham	Gas Station	6000	Diesel
MOBIL	900 Edgell Road	Framingham	Gas Station	1000	Waste Oil

For More Information On Underground Storage Tanks, Visit The Massachusetts Department Of Fire Services Web Site: <http://www.state.ma.us/dfs/ust/usthome.htm>

Note: This Appendix Includes Only Those Facilities Within The Water Supply Protection Area(S) That Meet State Reporting Requirements And Report To The Appropriate Agencies. Additional Facilities Located Within The Water Supply Protection Area(S) Should Be Considered In Local Drinking Water Source Protection Planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Sudbury Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site-specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0000074	33 Union Road	Sudbury	Hazardous Material
3-0002341	465 Boston Post Road	Sudbury	Oil
3-0002423	432 Boston Post Road	Sudbury	Oil
3-0003267	Boston Post Road	Sudbury	Hazardous Material
3-0004202	470 Boston Post Road	Sudbury	Oil
3-0004339	523 Boston Post Road	Sudbury	Hazardous Material
3-0010592	428 Boston Post Road	Sudbury	Hazardous Material
3-0014107	15 Union Avenue	Sudbury	Oil
3-0015951	475 Boston Post Road	Sudbury	Oil
3-0019550	770 Water Street	Framingham	Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Tewksbury Water Division

What is SWAP?

The Source Water Assessment and Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Tewksbury Water Division
<i>PWS Address</i>	71 Merrimack Drive
<i>City/Town</i>	Tewksbury, Massachusetts 01876-1070
<i>PWS ID Number</i>	3295000
<i>Local Contact</i>	Lewis Zediana
<i>Phone Number</i>	(978) 858-0345

Introduction

We are all concerned about the quality of the water we drink. Public wells, reservoirs and rivers may be threatened by potential contaminant sources, including storm runoff, spills, and improper disposal of hazardous materials. Citizens, businesses and local officials can work together to better protect these drinking water sources.

Purpose of this report:

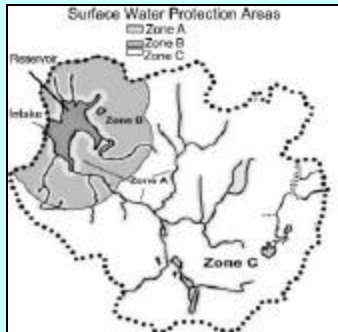
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

This report includes the following sections:

1. Description of the Water System
2. Land Uses in the Watershed
3. Source Water Protection
4. Emergency Planning Recommendations
5. Additional Resources Available for Source Water Protection
6. Appendices

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Section 1: Description of the Water System

<i>Source Name</i>	<i>Source ID</i>	<i>Susceptibility</i>
Merrimack River	3295000-01S	High

The Tewksbury Water Division (Tewksbury) withdraws water from the Merrimack River to supply drinking water to the community of Tewksbury. The Massachusetts Surface Water Quality Standards classify the Merrimack River as a Class B waterway. That means that the water withdrawn for drinking water purposes must be treated.

For current information on monitoring results and treatment or for a copy of the most recent Consumer Confidence Report, please contact the public water system contact person listed above in Table 1. Drinking water monitoring data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Merrimack River Watershed

The Merrimack River flows for 78 miles through New Hampshire and for another 50 miles in Massachusetts, from Lowell to Newburyport and into the Atlantic Ocean. There are 1,200 square miles of watershed in Massachusetts in all or part of 24 communities. Upstream of the Tewksbury drinking water intake, the following communities are in the Merrimack River watershed: Dracut; Lowell; Chelmsford; Tyngsborough; Westford; Dunstable; Groton; Ayer; Littleton; Harvard; Boxborough; Ashby; and, Ashburnham. Sixteen percent

(16%) of the watershed in Massachusetts upstream of the Tewksbury intake is listed in DEP's Geographic Information System (GIS) databases as protected open space. The other 84% contains a mix of land uses such as residential homes, shopping malls, businesses, industrial processes, transportation corridors, agriculture, utility lines and recreation facilities.

Class B Drinking Water Sources

There are twelve Class B drinking water sources on rivers in Massachusetts, eleven in the urbanized northeast and one in the western part of the State. Five of these sources are located on the Merrimack River. The large watersheds and historically urbanized land uses associated with major rivers makes source protection a challenge at the Class B sources.

A Class B water body source such as the Merrimack River does not have Zone A, B and C protection areas, as do Class A water body sources. For the purposes of the SWAP assessments, a 400 foot setback area along the river and all feeder streams has been delineated for Class B water body sources that is referred to as an "Emergency Planning

Class B River Intakes

Class B water sources do not have Zone A, B and C protection areas as the Class A sources do. For the purposes of this report, an "Emergency Planning Zone" has been delineated. The **Emergency Planning Zone** is the land area within 400 feet of both sides of the river including all tributary streams and surface water bodies.

Zone". Land uses and activities within this zone are of particular concern for source protection and emergency planning because of their proximity to the water supply.

River drinking water sources are particularly susceptible to spills and accidental releases from public and private discharges; accidents related to vehicles, railroads, airports, boats; utility easements; fixed site releases at industrial and public facilities; inappropriate use of pesticides and fertilizers; improper disposal of hazardous household waste; and illegal dumping of a variety of substances.

This assessment has been conducted on the watershed area upstream of the Tewksbury Water Division intake to the state boundary. Potential threats that have been identified in New Hampshire have also been included. In addition, DEP has delineated a 400-foot emergency planning zone (shown on the GIS map that accompanies this report) adjacent to the river and its tributaries, up to the state boundary, for the purpose of this assessment.

This report contains a list of regulated facilities that are located within the watershed. Page 11 of this report contains recommendations for emergency planning.

Section 2: Land Uses in the Protection Areas

The protection area for Tewksbury is a mixture primarily of residential, commercial, industrial, and forest land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues Include:

1. Activities in Emergency Planning Zone
2. Agricultural Activities
3. Hazardous Materials Manufacture, Storage and Use
4. Transportation Corridors
5. Stormwater Flows
6. Railroad Tracks
7. Transmission Lines
8. Combined Sewer Overflows
9. Recreation (beaches, campgrounds, boating)
10. Golf Courses
11. Road and Maintenance Depots
12. Federal Superfund Site and Oil or Hazardous Material Contamination Sites
13. Residential

1. Activities in Emergency Planning Zone - The Emergency Planning Zone is a 400 foot setback on either side of the river and all tributaries to a Class B river intake. Land use activities within an Emergency Planning Zone may have an impact on surface water sources. Wild animals and domestic pet wastes can carry waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. while septic systems and road runoff can carry these as well as other contaminants.

Emergency Planning Zone Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Monitor and review activities within the Emergency Planning Zone.

2. Agricultural Activities – Agricultural land uses, cropland and pastures, comprise about 5% of the watershed. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, underground and aboveground storage tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills. Agricultural activities can also be a potential source of microbial contamination from improper manure management.

Agricultural Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Work with farmers to make them aware of the water supply and to encourage the use of a U.S. Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ The Massachusetts Department of Food & Agriculture’s booklet titled “On-Farm Strategies to Protect Water Quality - An Assessment & Planning Tool for Best Management Practices” (December 1996) describes technical and financial assistance programs related to the control of erosion and to the management of nutrients, pests, manure, grazing and irrigation.
- ✓ Work with farmers to ensure that pesticides, fertilizers and manure are being stored within a structure designed to prevent runoff.

What are BMPs?

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

3. Chemical and Hazardous Materials Manufacture, Storage and Use – Many large and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in USTs and ASTs. Although many facilities within the watershed use best management practices (BMPs), hazardous materials and waste can be unexpectedly released through spills, leaks or improper handling or storage, and become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Educate local businesses on BMPs for protecting water supplies, and encourage them to use BMPs for handling, storing and disposing of hazardous waste. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.
- ✓ Monitor water quality in the Merrimack River.
- ✓ Continue to plan and prepare for spills by communicating with facilities and conducting drills.

4. Transportation Corridors - Route 3, Route 495 and other paved and unpaved local roads and highways cross through the watershed. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. (Continued on page 7)

**When you fertilize the lawn,
Remember
you're not *just* fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108

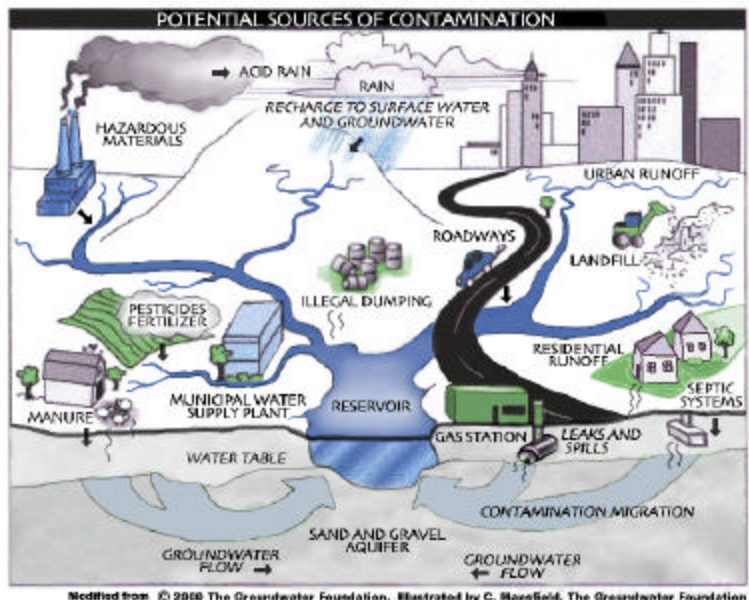


Figure 1: Sample watershed with examples of potential sources of contamination

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Uses in the Watershed

For more information, refer to Appendix B: Regulated Facilities.

Land Uses	Quantity	Threat	Potential Sources of Contamination*
Agricultural			
Fertilizer Storage or Use	Few	M	Leaks, spills, improper handling, or over-application of fertilizers
Pesticide Storage or Use	Few	H	Leaks, spills, improper handling, or over-application of pesticides
Commercial			
Body Shops	2	H	Improper management of vehicle paints, solvents, and primer products
Gas Stations	6	H	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	5	H	Spills, leaks, or improper handling of automotive fluids, and solvents
Bus and Truck Terminals	2	H	Spills, leaks, or improper handling of fuels and maintenance chemicals
Car/Truck/Bus Washes	1	L	Improper management of vehicle wash water; soaps; oils; greases; metals; salts
Cemeteries	Few	M	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Dry Cleaners	1	H	Spills, leaks, or improper handling of solvents and wastes
Funeral Homes	Few	L	Spills, leaks, or improper handling of hazardous chemicals
Furniture Stripping and Refinishing	1	H	Spills, leaks, or improper handling of hazardous chemicals
Golf Courses	6	M	Over-application or improper handling of fertilizers or pesticides
Printer and Blueprint Shops	1	M	Spills, leaks, or improper handling or storage of printing inks and chemicals
Railroad Tracks and Yards	3	H	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Sand and Gravel Mining/ Washing	Few	M	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial			
Asphalt, Coal Tar, and Concrete Plants	1	M	Spills, leaks, or improper handling or storage of hazardous chemicals and wastes

Land Uses	Quantity	Threat	Potential Sources of Contamination
Industrial			
Chemical Storage or Manufacture	Numerous	H	Spills, leaks, or improper handling or storage of chemicals or process waste
Hazardous Materials Storage	Numerous	H	Spills, leaks from improper handling or storage of hazardous waste
Industrial Parks	Few	H	Leaks, spills of chemicals from improper handling or storage
Nuclear Power Plants	1	H	Spills, leaks, or improper handling of radioactive materials
Plastic Manufacturers	1	H	Spills, leaks, or improper handling or storage of solvents, resins and process wastes
Residential			
Fuel Oil Storage (at residences)	100+	M	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	100+	M	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	100+	M	Microbial contaminants, improper disposal of hazardous chemicals
Miscellaneous			
Aboveground Storage Tanks	Few	M	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	100+	L	Microbial contaminants
Combined Sewer Overflows	Few	L	Microbial and non-microbial contaminants including industrial wastewater; improper disposal of hazardous wastes
Fishing/Boating	100+	L	Fuel and other chemical spills, microbial contaminants
Landfills and Dumps	2	H	Seepage of leachate
Large Quantity Hazardous Waste Generators	14	H	Spills, leaks, or improper handling or storage of hazardous materials and waste
NPDES Locations	2	L	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	100+	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	Spills, leaks, or improper handling or storage of de-icing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	Few	M	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	28	M	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/Retention Basins	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Superfund Sites	1	H	Spills, leaks, or improper handling or storage of oil or hazardous materials and waste

Land Uses	Quantity	Threat	Potential Sources of Contamination
Transmission Line Rights-of-Way	6	L	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	2	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	100+	H	Spills, leaks, or improper handling of stored materials
Utility Substation Transformers	1	L	Spills, leaks, or improper handling of chemicals and other materials including PCBs
Very Small Quantity Hazardous Waste Generators	100+	L	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/Recycling Stations	3	M	Improper management, seepage, and runoff of water contacting waste materials
<p>Notes:</p> <ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities. 3. For information about Oil or Hazardous Materials Sites, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - Where there are two rankings, the first is for ground water, the second for surface water. The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>			

(Continued from page 4)

De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins. The steep topography of the watershed results in application of de-icing materials to protect public health and safety by keeping the roads passable.

Transportation Corridor Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Establish vegetated buffers along roads and parking areas to provide some filtration of contaminants.
- ✓ Encourage regular street sweeping. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.
- ✓ Conduct emergency drills to be ready for spills.
- ✓ Regularly inspect the watersheds for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills can be effectively contained.
- ✓ Work with the City and State to have catch basins inspected, maintained, and cleaned on a regular schedule.

5. Stormwater Flows - Stormwater from roads and commercial development, such as malls in Nashua, New Hampshire, flows directly into the Merrimack River and its tributaries. Stormwater may contain debris, chemicals, bacteria, and nutrients that can impact water quality in the river. Spills can enter the river through stormwater flows.

Stormwater Flows Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Encourage parking lot sweeping in commercial areas.
- ✓ Conduct routine testing for bacteria in river after storms.
- ✓ Continue to plan and prepare for spills.
- ✓ If storm drainage maps are available, review the maps with emergency response teams.

6. Railroad Rights-of-Way - Railroad tracks are located along the bank of the Merrimack River. Railroad Rights-of-Way are potential sources of contamination because of the possibility of spills of transported materials, chemical releases during track maintenance or the over-application or improper handling of herbicides during rights-of-way maintenance.

The Rights-of-Way Management Regulations (333 CMR 11.00) were designed to minimize any potential harmful effects of herbicides used for vegetation control along Rights-of-Way in Massachusetts. The regulations promote the use of an integrated pest management (IPM) approach to vegetation control and require application setback distances to protect drinking water sources and other environmentally sensitive areas. Utilities must submit a Vegetation Management Plan (VMP) and a Yearly Operating Plan (YOP) to the Mass. Department of Food and Agriculture for approval and to the municipalities within which herbicide application is proposed.

Railroad Rights-of-Way Recommendations:
Work with communities within the Merrimack watershed to:

- ✓ Review the utility's YOP to ensure that BMPs for herbicide applications are in place.
- ✓ Plan for spills and conduct emergency response drills to test procedures.

**When you wash your car in the driveway,
Remember
you're not just washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Water Street Boston, MA 02108

7. Transmission (Utility) Lines - Transmission lines run throughout the watershed. These are potential sources of contamination because of the possibility of over-application or improper handling of herbicides during rights-of-way maintenance.

Transmission (Utility) Lines Recommendation:

Work with communities within the Merrimack watershed to:

- ✓ Monitor the YOP for pesticide applications.

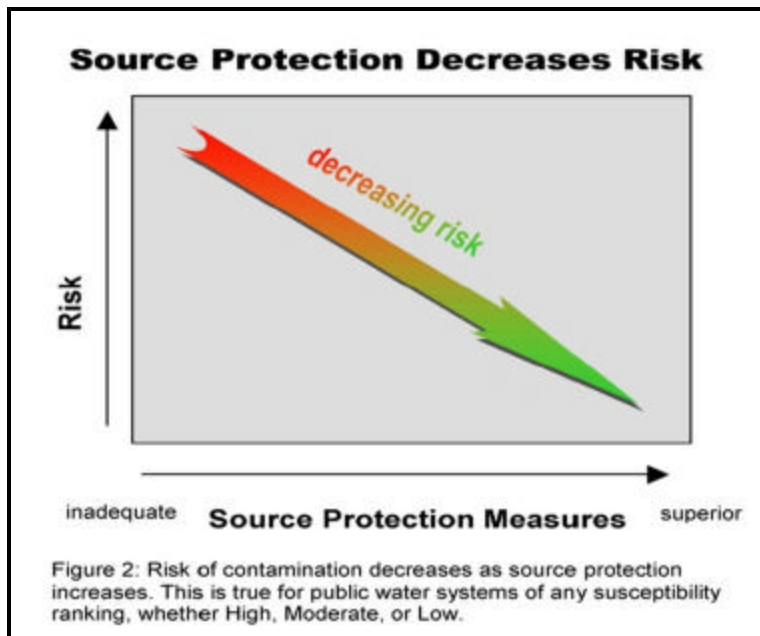
8. Combined Sewer Overflows (CSOs) - Overflows from the Nashua, New Hampshire sewer system have the potential to cause microbial and non-microbial contaminants to enter the river during high stormwater flows.

Combined Sewer Overflows Recommendation:

Work with communities within the Merrimack watershed to:

- ✓ Continue working with existing committees and legislators on CSOs.

9. Recreation (beaches, campgrounds, boating) - the Merrimack River is a popular regional water resource and is used extensively



for boating and fishing. Other recreational uses include beaches and campgrounds along the shoreline.

Recreation Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Post water supply awareness signs along the banks of the river, at access points, and at the Tewksbury Water Division river intake.
- ✓ Incorporate drinking water protection education into community events.
- ✓ Develop a boater education program that addresses issues specific to boating and source protection
- ✓ Encourage boaters and other users to report spills.

10. Golf Courses - There are six golf courses within the assessment area. Potential contaminants include the over-application or improper handling of pesticides and fertilizers. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Courses Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Encourage the golf course grounds manager to incorporate an Integrated Pest Management (IPM) approach into their grounds maintenance program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote Best Management Practices (BMPs) for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Contact owners/operators about water supply awareness and protection.

11. Road and Maintenance Depots - Potential sources of contamination in state and municipal facilities can result from accidental dumping, spills, leaks, vehicle washing operations, or from wastewater treatment. Waste management and product storage pose the greatest threats with a wide variety of potentially harmful contaminants.

Road and Maintenance Depots Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/neeat/muni/index.html>. Encourage road and maintenance depots to develop best management practices to ensure proper salt storage, proper maintenance of facilities and good housekeeping practices.
- ✓ Salt pile structures should be adequately sized to allow for the loading and unloading of salt within the structure. Review the Department of Environmental Protection's Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.
- ✓ Encourage proper storage of materials at these facilities. Appendix A contains a fact sheet titled *DPWs Protect Drinking Water*.

12. Presence of Federal Superfund Site and Oil or Hazardous Material Contamination Sites – The watershed for the Merrimack River contains a United States Environmental Protection Agency (USEPA) Superfund Site that is associated with DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number 2-0000136. The watershed within the Town of Tewksbury also contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 3-0000439, 3-0000810, 3-0001162, 3-0001717, 3-0002516, 3-0003181, and 3-0012734. Refer to the attached maps and Appendix B for more information on these sites, and for information on DEP Tier Classified Oil and/or Hazardous Material Release Sites within the watershed for the Merrimack River.

Federal Superfund Site and Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Information about DEP Tier Classified Oil or Hazardous Material Release Sites can be obtained at DEP's Bureau of Waste Site Cleanup's web site, www.state.ma.us/dep/bwsc. Sites are identified on the attached GIS map and site specific information is available in Appendix C.

Federal Superfund Site and Oil or Hazardous Material Contamination Sites Recommendation:

Work with communities within the combined watersheds to:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

13. Residential - Over 30% of the assessment area consists of residential land uses. If managed improperly, household hazardous waste, septic systems, lawn care and pet waste can all contribute to ground and surface water contamination. Household hazardous wastes include automotive wastes, paints, solvents and other substances that should be disposed of properly at a municipal collection site. If a septic system fails or is not properly maintained, it can be a potential source of microbial contamination. Improperly applied fertilizers and pesticides can wash off lawns and into surface waters. Pet waste may contain bacteria, parasites or viruses that are health risks.

- **Septic Systems** - Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Residential Land Use Recommendations:

Work with communities within the Merrimack watershed to:

- ✓ Control residential growth on undeveloped land.
- ✓ See www.state.ma.us/envir/ to obtain information on the build-out analyses for communities into which the watershed extends.
- ✓ Educate residents on how to protect water supplies. Distribute the fact sheet *Residents Protect Drinking Water* available in Appendix A and at www.mass.gov/dep/brp/dws/protect.htm.
- ✓ Post water supply awareness signs on streets throughout the watershed.
- ✓ Work with city boards and upstream communities to review and provide recommendations on proposed watershed development.

Other land uses and activities within the emergency planning zone and watershed that are potential sources of contamination are included in Table 2. Refer to Appendix A for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection

Current Land Uses and Source Protection:

As with many water systems, this watershed contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The Tewksbury Water Division is commended for taking an active role in protecting their drinking water source. Some examples of the staff's good work include the following:

Emergency Planning and Response - The Utility works with upstream communities in Massachusetts and New Hampshire on emergency response planning. They have an emergency management committee and coordinate activities with the Massachusetts Emergency Management Agency (MEMA) facility in Tewksbury.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Communication with Other Communities - The Utility maintains contact with upstream communities, including those in New Hampshire, on a variety of source protection issues.

Section 4: Emergency Planning Recommendations

Prevention

Public water suppliers with a river source may take preventive measures to protect the source from unexpected releases. Here are some suggestions.

1. Title III (Emergency Planning and Community Right-to-Know) of the Superfund Amendments & Reauthorization Act (SARA) of 1986 required that each community **develop a comprehensive emergency response plan**. Suppliers should review the existing plan to ensure that water supply issues are satisfactorily addressed in the plan, that current response personnel and their correct telephone numbers are listed, and that the entire plan is regularly reviewed and updated by community officials.

The community plan, or a separate water supplier plan, should include copies of policies in the event of spills or releases; regulatory notification requirements such as what size spills are required to be reported, who to call, telephone numbers, and what information is required to be reported; map of intakes, tributaries, watershed boundaries, adjacent public wells, and locations of sites where spills or accidental releases could occur.

2. **Identify, map and distribute information** to local emergency responders regarding the locations of intakes on the river, tributaries, watershed boundaries, public wells adjacent to river; chemical use at municipal, state, and industrial facilities in watershed (contact Fire Dept., DEP); locations of stormwater drains and the locations of known dams in the event that they can be manipulated by authorized individuals for contaminant control.

The Fire Dept., Board of Health, Planning Board, Local Emergency Planning Committee (LEPC), DEP and others may have existing information to help with your work. SARA requires companies to work with the community's LEPC if they handle extremely hazardous chemicals in quantities above established thresholds.

3. **Develop a communication list** of contacts at upstream and downstream facilities, dams, as well as other public water suppliers on, or adjacent to, rivers. Notify owners and operators of these facilities about the location of your intake and request, in writing, that you be notified immediately in the event of a chemical spill or unexpected discharge. Take this opportunity to educate others about water supply protection.
4. **Provide comments** to municipal boards in other cities/towns in the watershed about proposed development, land use controls, Best Management Practices (BMPs) for stormwater flow into tributaries, and other issues to avoid future problems.
5. **Post signs** along major roads in watershed which direct the public to call "911" or other appropriate local number in case of spills. Be aware of accident-prone areas and transport routes of chemicals if possible.
6. **Educate** the public, local officials, Civil Defense, local emergency response team, and others about water supply protection issues. Educate businesses about toxic use reduction.
7. **Conduct household hazardous waste collection days** and establish permanent collection sites, away from sensitive watershed areas, for used batteries, paints, motor oil, etc.
8. **Conduct drills**, in coordination with local/regional response teams, to test policies and procedures and to practice responding to various situations. Including businesses, local officials and staff, Fire Departments, Boards of Health, Civil Defense, school administration, and others in planning and implementing the drills will allow for several town or region-wide concerns to be addressed and tested at the same time, including: issuing health advisories, conducting neighborhood and/or school evacuations, and evaluating the town's communication system (both making responders aware of the emergency and issuing advisories to the public when necessary via television, radio, and other news media), equipment and emergency plan in general.
9. Critique the drills and **modify components** of the emergency response system as needed.

Responding to Emergencies

Drinking water supply professionals responding to local emergencies need to be adequately prepared and trained, and know their roles and responsibilities. Here are some suggestions.

1. **Know regulatory reporting requirements** of state and federal agencies. Know who to call, telephone numbers and what information to report.
2. **Know your role & responsibilities**. Have access to, and be familiar with, the emergency communication list, policies and procedures for emergency response; know when, and how, to safely handle spills or other events until first responders arrive on scene; know what steps to take to avoid drawing contaminants into the water supply system; be familiar enough with local watershed characteristics to provide incident commander with information and advice.
3. **Provide training and materials to responding staff**. Water supply staff, including new employees, should be adequately trained, have access to appropriate materials (storm drain covers, absorbent pads, booms, etc.), up-to-date policies, procedures, and communication lists to perform tasks for which they are responsible.

Follow-up

Steps can be taken to ensure better preparedness in the event of future emergency situations. Here are some suggestions.

1. **Provide follow-up reports** to the public on the resolution of the situation.
2. **Share the information** learned from drills and real situations with others in order to better protect all public drinking water sources.

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in the Key Issues above and Appendix A.

Section 5: Additional Resources Available for Source Water Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Source Protection Grant Program provides funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response (RFR) for the grant program.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watershed. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Information about DEP Tier Classified Oil or Hazardous Material Release Sites can be obtained at DEP's Bureau of Waste Site Cleanup's web site, www.state.ma.us/dep/bwsc. Sites are identified on the attached GIS map and site specific information is available in Appendix C.

Section 6: Appendices

- A. Protection Recommendations
- B. List of Regulated Facilities (in Massachusetts)
- C. Table of Tier Classified Oil and/or Hazardous Material Sites
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's NERO at (617) 654-6535 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN TEWKSBURY'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
38043	NEW ENGLAND HYDRO TRANS ELECTRIC	RADISSON RD	AYER	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
--	BROOK VILLAGE CONDO	C/O RELIABLE PROP. MGMT/P.O. BOX 210	BOXBOROUGH	GROUND	GROUNDWATER DISCHARGE
39155	CHELMSFORD LANDFILL	SWAIN RD	CHELMSFORD	SLF	CHARGEABLE CLOSED LANDFILL
366769	MERRIMACK VALLEY SCREEN PRINTING INC	6 ADAMS ST	CHELMSFORD	PLANT	NON-NOTIFIER AQ FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
366769	MERRIMACK VALLEY SCREEN PRINTING INC	6 ADAMS ST	CHELMSFORD	DISCH	NON-NOTIFIER IWW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
131963	UNITED CIRCUITS INC	100 PLEASANT ST	DRACUT	TURRPT	LARGE QUANTITY TOXICS USER
131963	UNITED CIRCUITS INC	100 PLEASANT ST	DRACUT	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
298511	DUMONT ENTERPRISES INC	41 LOWELL ST	DUNSTABLE	HANDLR	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
366857	DUNSTABLE GAS INC	238 PLEASANT ST	DUNSTABLE	FULDSP	FUEL DISPENSER STAGEII
32187	WEST AUTO REPAIR	30 PLEASANT ST	DUNSTABLE	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	FULDSP	FUEL DISPENSER STAGEII
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
136387	GROTON AL PRIME	619 BOSTON RD	GROTON	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
39315	GROTON LANDFILL	600 COW POND BRK RD	GROTON	SLF	CHARGEABLE LANDFILL
363409	GROTON TRANSFER STATION	600 COW POND BROOK RD	GROTON	TRSTN	SMALL HANDLING FACILITY
377537	AGGREGATE INDUSTRIES	80 AYER RD	LITTLETON	TURRPT	LARGE QUANTITY TOXICS USER
--	LITTLETON NURSING HOME	2955 KEITH STREET	LITTLETON	GROUND	GROUNDWATER DISCHARGE
229723	MIDDLESEX CONCRETE	80 AYER RD	LITTLETON	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
--	PONDSIDE APT. COMPLEX	488 COMMONWEALTH AVENUE	LITTLETON	GROUND	GROUNDWATER DISCHARGE
186901	VERYFINE PRODUCTS INC	20 HARVARD ROAD	LITTLETON	TURRPT	LARGE QUANTITY TOXICS USER
363549	WAKEFIELD MATERIALS CORPORATION	80 AYER RD	LITTLETON	TURRPT	LARGE QUANTITY TOXICS USER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
370173	CHEVROLET OF LOWELL INC	831 ROGERS ST	LOWELL	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
370173	CHEVROLET OF LOWELL INC	831 ROGERS ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
--	COMPAQ COMPUTER CORP	550 KING STREET	LITTLETON	GROUND	GROUNDWATER DISCHARGE
53879	FREUDENBERG NONWOVEN	221 JACKSON ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
53879	FREUDENBERG NONWOVEN	221 JACKSON ST	LOWELL	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
53879	FREUDENBERG NONWOVEN	221 JACKSON ST	LOWELL	TURRPT	LARGE QUANTITY TOXICS USER
131011	IDEAL TAPE CO	1400 MIDDLESEX ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131011	IDEAL TAPE COMPANY	1400 MIDDLESEX ST	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
177799	JIFFY LUBE	645 ROGERS ST	LOWELL	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
177799	JIFFY LUBE	645 ROGERS ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
53762	JOAN FABRICS CORP	27 JACKSON STREET	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
53845	LOWELL COGENERATION COMPANY LP	282 WESTERN AVE	LOWELL	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
53845	LOWELL COGENERATION COMPANY LP	282 WESTERN AVE	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
53845	LOWELL COGENERATION COMPANY LP	282 WESTERN AVE	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
131026	MA COM INC	100 CHELMSFORD ST	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
131026	MA COM INC	100 CHELMSFORD ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
215603	NE NO6 INC SPEEDEE OIL CHANGE & TUNE UP	1485 MIDDLESEX ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
35763	NTI LUBRICATIONS INC	1713 MIDDLESEX ST	LOWELL	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
35763	NTI LUBRICATIONS INC	1713 MIDDLESEX ST	LOWELL	HANDLR	LARGE QUANTITY GENERATOR WASTE OIL/PCBS
121233	OAK FINISHERS CO	REAR 165 JACKSON ST	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
131016	ROCHE BROTHERS BARREL & DRUM CO	161 PHOENIX AVE	LOWELL	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
295908	RADIOLOGY RESOURCES INC	225 STEDMAN STREET - UNIT #33	LOWELL	HWR	HAZARDOUS WASTE RECYCLER
131016	ROCHE BROTHERS BARREL CO.	161 PHOENIX AVENUE	LOWELL	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
365455	SPECIALTY MATERIALS INC	1449 MIDDLESEX AVE	LOWELL	TURRPT	LARGE QUANTITY TOXIC USER
365455	SPECIALTY MATERIALS INC	1449 MIDDLESEX AVE	LOWELL	HANDLR	LARGE QUANTITY GENERATOR RCRA HAZARDOUS WASTE
131030	TEXTRON SPECIALTY CORPORATION	1449 MIDDLESEX STREET	LOWELL	TURRPT	LARGE QUANTITY TOXICS USER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131030	TEXTRON SPECIALTY CORPORATION	1449 MIDDLESEX STREET	LOWELL	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
34343	ASHLAND CHEMICAL CO	400 MAIN ST	TEWKSBURY	HANDLR	TRANSPORTER OF HAZARDOUS WASTE
34343	ASHLAND CHEMICAL COMPANY	400 MAIN ST	TEWKSBURY	TURRPT	LARGE QUANTITY TOXICS USER
53791	ECRM	554 CLARK RD	TEWKSBURY	HANDLR	LARGE QUANTITY GENERATOR OF HAZ WASTE
370388	3A GAS	257 MIDDLESEX RD	TYNGSBORO	FULDSP	FUEL DISPENSER
322941	ANDYS AUTO BODY	339 WESTFORD ST	TYNGSBORO	PLANT	AIR QUALITY PERMIT
322941	ANDYS AUTO BODY	339 WESTFORD ST	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
348617	BARR ASSOC INC	300 POTASH HILL RD	TYNGSBORO	PLANT	AIR QUALITY PERMIT
320025	BELCASTRO FURNITURE RESTORATION	77 WESTECH DR	TYNGSBORO	PLANT	AIR QUALITY PERMIT
320025	BELCASTRO FURNITURE RESTORATION	77 WESTECH DR	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132303	BFI WASTE SYSTEMS OF NORTH AMERICA	385 DUNSTABLE RD	TYNGSBORO	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
132303	BFI WASTE SYSTEMS OF NORTH AMERICA	385 DUNSTABLE RD	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
132303	BFI WASTE SYSTEMS OF NORTH AMERICA	385 DUNSTABLE RD	TYNGSBORO	DISCH	INDUSTRIAL WASTE WATER SURFACE WATER DISCHARGE

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
298585	BRITE KLEEN CLEANERS	26 WESTFORD RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
32160	COLONIAL AUTO BODY	121 LAKEVIEW AVE	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
110594	DANA WALLBOARD SUPPLY INC	6 CUMMINGS RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
302562	DUFFS GARAGE	92 KENDALL RD	TYNGSBORO	DISCH	BELOW INDUSTRIAL WASTE WATER REG LEVELS
302562	DUFFS GARAGE	92 KENDALL RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
291199	DUNBAR BUS CO	33 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
132214	HUSSEY PLASTICS INC	65 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
307332	INDEPENDENT SPRAY	26R WOODLAWN ST	TYNGSBORO	PLANT	AIR QUALITY PERMIT
307332	INDEPENDENT SPRAY	26R WOODLAWN ST	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
368183	MOBIL 12369	95-97 WESTFORD RD	TYNGSBORO	FULDSP	FUEL DISPENSER
324984	MUTUAL OIL	397 MIDDLESEX RD	TYNGSBORO	FULDSP	FUEL DISPENSER
321837	MUTUAL OIL CO INC	397 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
368441	NEW ENGLAND TRANSIT SALES INC	30 PROGRESS AV	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132833	PICONICS INC	26 CUMMINGS RD	TYNGSBORO	PLANT	AIR QUALITY PERMIT
132833	PICONICS INC	26 CUMMINGS RD	TYNGSBORO	DISCH	INDUSTRIAL WASTE WATER HOLDING TANK
132833	PICONICS INC	26 CUMMINGS RD	TYNGSBORO	HANDLR	SMALL QUANTITY GENERATOR OF HAZ WASTE
853	THUNDERBIRD PLAZA	MIDDLESEX RD	TYNGSBORO	GROUND	GROUNDWATER DISCHARGE
209890	TJ MAXX PLAZA	440 MIDDLESEX RD	TYNGSBORO	GROUND	GROUNDWATER DISCHARGE
230673	TOWN AND COUNTRY GARAGE	54 PAWTUCKET BLVD	TYNGSBORO	FULDSP	FUEL DISPENSER
37104	TYNGSBORO AUTO WORKS	33 MIDDLESEX RD	TYNGSBORO	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
310633	TYNGSBORO HIGHWAY DEPT	89 KENDELL RD	TYNGSBORO	FULDSP	FUEL DISPENSER
130848	WESTFORD ANODIZING CORP	12 NORTH MAIN ST	WESTFORD	HANDLR	LARGE QUANTITY GENERATOR HAZARDOUS WASTE
130848	WESTFORD ANODIZING CORP	12 NORTH MAIN ST	WESTFORD	TURRPT	LARGE QUANTITY TOXICS USER
--	WESTFORD MIDDLE SCHOOL	35 TOWN FARM ROAD	WESTFORD	GROUND	GROUNDWATER DISCHARGE

UNDERGROUND STORAGE TANKS WITHIN TEWKSBURY'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
M W LEAHY CO INC	21 WESTFORD RD	AYER	TRUCK/TRANSPORT	3
MASS DPW MAINT DEPOT	SWANSON RD	BOXBOROUGH	STATE	2
TOSCO #2634709	1425 MASSACHUSETTS AVE	BOXBOROUGH	GAS STATION	4
BOMIL G.P. WELL # 1,3,4	RICHARDSON ROAD	CHELMSFORD	UTILITIES	3
CUMBERLAND GULF #2428	71 DRUM HILL RD	CHELMSFORD	GAS STATION	5
MARCHAND OIL CO INC	89 STEADMAN ST	CHELMSFORD	PETR. DISTR	7
SHELL SERVICE STATION 22013090505	188 PRINCETON BLVD	CHELMSFORD	GAS STATION	4
SUNOCO #0011-8927	100 DRUM HILL RD	CHELMSFORD	GAS STATION	3
TOSCO #2634732	5 DRUM HILL RD	CHELMSFORD	GAS STATION	3
BELL ATLANTIC (5243-07)	28 DIANA LN	DRACUT	UTILITIES	3
BELL ATLANTIC CENTRAL OFFICE	1212 MAMMOTH RD	DRACUT	UTILITIES	1
DRACUT AUTO CARE INC	500 NASHUA RD	DRACUT	GAS STATION	3
HIGHWAY DEPT	833 HILDRETH ST	DRACUT	MUNICIPAL	2

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
JAY'S SERVICE CENTER INC	1225 MAMMOTH RD	DRACUT	GAS STATION	6
JIM'S SERVICE STATION INC	1643 LAKEVIEW AVE	DRACUT	GAS STATION	4
P J KEATING COMPANY	240 BRIDGE ST	DRACUT	TRUCK/TRANSPORT	1
SHELL SERVICE STATION 22018770200	1100 LAKEVIEW ST	DRACUT	GAS STATION	4
DUNSTABLE GENERAL STORE INC	238 PLEASANT ST	DUNSTABLE	GAS STATION	3
A L PRIME ENERGY	619 BOSTON RD	GROTON	GAS STATION	3
TOWN OF GROTON HIGHWAY DEPT	500 COW POND BROOK RD	GROTON	MUNICIPAL	2
ARCHER'S MOBIL # 01-787	500 KING ST	LITTLETON	GAS STATION	5
DCM ENTERPRISES INC	25 KING ST	LITTLETON	GAS STATION	5
LITTLETON CITGO	256 AYER RD	LITTLETON	GAS STATION	3
NATIONAL FREIGHT INC #09	194 AYERS RD	LITTLETON	TRUCK/TRANSPORT	3
SHELL SERVICE STATION #137781	460 KING ST	LITTLETON	GAS STATION	3
TMC LEASING LLC	80 AYER RD	LITTLETON	INDUSTRIAL	2

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
TOWN OF LITTLETON	39 AYER RD	LITTLETON	MUNICIPAL	3
VERYFINE PRODUCTS INC	20 HARVARD RD	LITTLETON	INDUSTRIAL	3
ADVANCED AUTO PERFORMANCE	479 BROADWAY ST	LOWELL	GAS STATION	2
AMES CORPORATION	121 CHURCH ST	LOWELL	OTHER	1
BELL ATLANTIC	115 APPLETON ST	LOWELL	UTILITIES	1
BRIDGE STREET SUNOCO	356 BRIDGE ST	LOWELL	GAS STATION	3
COLONIAL GAS CO	775 DUTTON ST	LOWELL	UTILITIES	3
FORMER DEMERS SHELL STATION	550 BRIDGE ST	LOWELL	GAS STATION	5
GASOLINE MERCHANTS INC	276 HIGH ST	LOWELL	GAS STATION	4
GASOLINE MERCHANTS INC	710-724 LAKEVIEW AVE	LOWELL	GAS STATION	3
GEOFFREYS SERVICE STATION	290 WESTFORD ST	LOWELL	GAS STATION	1
GEORGE MACHERAS	66 BROADWAY ST	LOWELL	OTHER	1
GETTY STATION #30618	801 LAKEVIEW AVE	LOWELL	GAS STATION	2

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
GORHAM STREET SUNOCO	380 GORHAM ST	LOWELL	GAS STATION	3
HAFFNER'S	1150 BRIDGE ST	LOWELL	GAS STATION / PETR. DISTR	7
HAFFNER'S	189 APPLETON ST	LOWELL	GAS STATION	3
HAFFNER'S	215 DUTTON ST	LOWELL	GAS STATION	6
HESS 21322	558 PAWTUCKET ST	LOWELL	GAS STATION	3
HESS 21509	300 MERRIMACK ST	LOWELL	GAS STATION	3
IDEAL TAPE COMPANY	1400 MIDDLESEX ST	LOWELL	INDUSTRIAL	3
JIM WITT PONT-GMC TRUCK INC	1365 MIDDLESEX ST	LOWELL	VEHICLE DEALER	1
JOAN FABRICS CORP PLANT #14	27 JACKSON ST	LOWELL	INDUSTRIAL	1
KAZANJIAN ENTERPRISE	1460 MIDDLESEX ST	LOWELL	GAS STATION	5
KINNEY'S TEXACO SERVICE INC	262 PAWTUCKET ST	LOWELL	GAS STATION	3
LOWELL GENERAL HOSPITAL	295 VARNUM AVE	LOWELL	HOSPITAL	2
LOWELL REGIONAL WATER UTILITY	815 PAWTUCKET BLVD	LOWELL	MUNICIPAL	2

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
MOUJAES INC C&J MOBIL	443 BRIDGE ST	LOWELL	GAS STATION	4
MULDOON BROTHERS INC	498 BROADWAY ST	LOWELL	GAS STATION	2
PALMER'S AUTOMOTIVE	1500 MIDDLESEX ST	LOWELL	GAS STATION	1
PETE AND RAY AUTO REPAIR INC	472 PRINCETON BLVD	LOWELL	GAS STATION	3
RAY MARCHAND OIL / AUTO	493 PRINCETON BLVD	LOWELL	GAS STATION	4
ROD'S AUTO CARE	626 ROGERS ST	LOWELL	GAS STATION	5
RONS TEXACO	360 MAMMOTH RD	LOWELL	GAS STATION	3
SUNOCO #0005-2894	711 ROGERS ST	LOWELL	GAS STATION	5
TONY'S FILLING STATION INC	51 MAMMOTH RD	LOWELL	GAS STATION	2
UNIVERSITY OF LOWELL	SOUTH CAMPUS	LOWELL	OTHER	1
UNIVERSITY OF LOWELL NORTH CAMPUS	NEW (1989) DORMITORY	LOWELL	OTHER	1
US POSTAL SERVICE LOWELL MAINT	44 POST OFFICE SQ	LOWELL	FEDERAL / NON-MILITARY	4
USA PETROLEUM CORP	780 ROGERS ST	LOWELL	GAS STATION	3

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
CRANE RENTAL CO INC	205 OLD MAIN ST	TEWKSBURY	OTHER	2
MOBIL #01-JFA	2 MAIN ST	TEWKSBURY	GAS STATION	6
MOBIL #01-PRJ	940 ANDOVER ST	TEWKSBURY	GAS STATION	5
SHELL STATION # 116791	365 MAIN ST	TEWKSBURY	GAS STATION	1
TEXACO SERVICE	1975 MAIN ST	TEWKSBURY	GAS STATION	5
TEXACO SERVICE LOC #11-025-0018	1 MAIN ST	TEWKSBURY	GAS STATION	4
BROWNING-FERRIS IND OF MASS INC	385 DUNSTABLE RD	TYNGSBOROUGH	TRUCK/TRANSPORT	2
DUSTY & SONS INC	257 MIDDLESEX RD	TYNGSBOROUGH	GAS STATION	4
MIDDLESEX TEXACO	397 MIDDLESEX RD	TYNGSBOROUGH	GAS STATION	2
MOBIL #01-E5Y	95-97 WESTFORD RD	TYNGSBOROUGH	GAS STATION	3
TOWN & COUNTRY	54 PAWTUCKET BLVD	TYNGSBOROUGH	OTHER	4
TOWN OF TYNGSBORO HIGHWAY DEPT	89 KENDALL RD	TYNGSBOROUGH	MUNICIPAL	2
COOK OIL CO INC	23 FORGE VILLAGE RD	WESTFORD	OTHER	1

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	NUMBER OF TANKS
CUMBERLAND FARMS #2408	158-180 LITTLETON RD	WESTFORD	GAS STATION	4
GETTY STATION #30562	1 OAK HILL RD	WESTFORD	GAS STATION	2
GETTY STATION #30633	262 GROTON RD	WESTFORD	GAS STATION	3
MOBIL #361	185 LITTLETON RD	WESTFORD	GAS STATION	4
ROBERT M HICKS INC	124 MAIN ST	WESTFORD	CONTRACTOR	1
WESTFORD CITGO	169 PLAIN RD	WESTFORD	GAS STATION	3
WESTFORD TIRE & AUTO	215 GROTON RD	WESTFORD	GAS STATION	4

FOR MORE INFORMATION ON UNDERGROUND STORAGE TANKS, VISIT THE MASSACHUSETTS DEPARTMENT OF FIRE SERVICES WEB SITE:
[HTTP://WWW.STATE.MA.US/DFS/UST/USTHOME.HTM](http://www.state.ma.us/dfs/ust/usthome.htm)

NOTE: THIS APPENDIX INCLUDES ONLY THOSE FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA(S) THAT MEET STATE REPORTING REQUIREMENTS AND REPORT TO THE APPROPRIATE AGENCIES. ADDITIONAL FACILITIES LOCATED WITHIN THE WATER SUPPLY PROTECTION AREA(S) SHOULD BE CONSIDERED IN LOCAL DRINKING WATER SOURCE PROTECTION PLANNING.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Tewksbury Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0019820	5 Drumhill Rd	Chelmsford	Oil And Hazardous Material
3-0000496	1095 Lakeview Ave	Dracut	Oil
3-0001069	Broadway Rd	Dracut	Oil
3-0002400	25 Victory Ln	Dracut	Oil
3-0003492	1507 Lakeview Ave	Dracut	--
3-0004645	91 Mill St	Dracut	Oil
3-0004651	2060 Bridge St	Dracut	--
3-0016749	1507 Lakeview Ave	Dracut	Oil
2-0013472	238 Pleasant Street	Dunstable	Oil And Hazardous Material
3-0000041	200 Market St	Lowell	--
3-0000347	1 Kyan St	Lowell	--

RTN	Release Site Address	Town	Contaminant Type
3-0000351	161 Phoenix Ave	Lowell	--
3-0000355	Broadway Dummer St	Lowell	Oil
3-0000535	Aiken Ave Perkins St	Lowell	--
3-0000852	43 Lakeview Ave	Lowell	--
3-0001052	150 Phoenix Ave	Lowell	--
3-0001056	Varnum Ave	Lowell	--
3-0001328	356 Bridge St	Lowell	--
3-0001620	66 Broadway	Lowell	Oil
3-0001954	1682-1700 Middlesex St	Lowell	--
3-0002044	1465 Middlesex St	Lowell	--
3-0002544	1 University Ave	Lowell	--
3-0002609	262 Pawtucket St	Lowell	--
3-0002629	774 Dutton St	Lowell	--
3-0002756	224 Walker St	Lowell	--
3-0004509	253 Merrimack St	Lowell	Oil
3-0004561	2461 Market St	Lowell	Oil
3-0004664	205 Church St	Lowell	Oil
3-0011528	Westford St	Lowell	Oil And Hazardous Material
3-0013603	262 Pawtucket St	Lowell	Oil and Hazardous Material
3-0014250	Pevey St @ Arlene St	Lowell	--
3-0014974	780 Rogers St	Lowell	Oil
3-0017036	180 Church St	Lowell	Oil
3-0017559	290 Westford St	Lowell	Oil
3-0017804	479 Broadway	Lowell	Oil
3-0018004	50 Arcand Dr	Lowell	Oil
3-0018128	219 East Merrimac St	Lowell	Oil
3-0018153	498 Broadway	Lowell	Oil
3-0019949	10 Technology Dr	Lowell	Oil And Hazardous Material
3-0000439	400 Main St Rte 38	Tewksbury	--

RTN	Release Site Address	Town	Contaminant Type
3-0000810	2 Main St	Tewksbury	Oil
3-0001162	450 Clark Rd	Tewksbury	--
3-0001717	365 Main St	Tewksbury	--
3-0002516	1 Main St	Tewksbury	--
3-0003181	940 Andover St	Tewksbury	Oil
3-0012734	Main St And Clark Rd	Tewksbury	Oil
2-0000136	475-530 Dunstable Road	Tyngsboro	--
2-0000392	292 Middlesex Road	Tyngsboro	--
2-0000428	Westech Drive	Tyngsboro	Oil
2-0010348	138-142 Frost Street	Tyngsboro	Hazardous Material
2-0011257	95-97 Westford Road	Tyngsboro	Oil And Hazardous Material
2-0012727	54 Pawtucket Blvd	Tyngsboro	Oil
2-0013702	95 97 Westford Road	Tyngsboro	Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Tewksbury Hospital

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Tewksbury Hospital
<i>PWS Address</i>	365 East Street
<i>City/Town</i>	Tewksbury, Massachusetts 01876
<i>PWS ID Number</i>	3295001
<i>Local Contact</i>	William Kelleher
<i>Phone Number</i>	(978) 851-7321

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures.

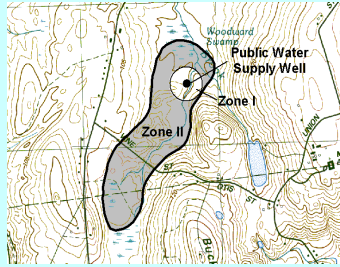
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

Zone II #: 497

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Old Tubular Wells	3295001-01G
East & Maple Street Well	3295001-03G

Tewksbury Hospital maintains and operates two public water supply sources. Tewksbury Hospital's sources are located within the Shawsheen River basin. The Old Tubular Wells (01G) and East & Maple Street Well (03G) wellhead protection area is located within the towns of Tewksbury and Andover. The East & Maple Street Well as a Zone I radius of 400 feet; tubular wells, such as the Old Tubular Wells, have a Zone I radius of 250 feet around each well. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of a hydrogeologic barrier (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The Zone II for Tewksbury Hospital's wells is primarily a mixture of forest and residential land uses, with a portions consisting of agricultural, commercial, and industrial activities (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous Materials Storage and Use
3. Agricultural Activities
4. Residential Land Uses
5. Transportation Corridors
6. Oil or Hazardous Material Contamination Sites
7. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the Tewksbury Hospital wells is high, based on the presence of at least one high threat land use within the water supply protection area, as seen in Table 2.

1. Activities in Zone Is – Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and can contain non-water supply activities such as homes and public roads. The Zone I for Tewksbury Hospital's Old Tubular Wells is intersected by active railroad tracks; the East & Maple Street Well is intersected by East Street.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP’s Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

2. Hazardous Materials Storage and Use– A small percent of the land area within the Zone II contains commercial and industrial land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.



Hazardous Materials Storage and Use Recommendations:

Work with the Town of Tewksbury to:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

3. Agricultural Activities – Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If not contained or applied properly, animal waste from barnyards, manure pits and field application is a potential source of contamination to ground and surface water. If managed improperly, underground and aboveground storage tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills.

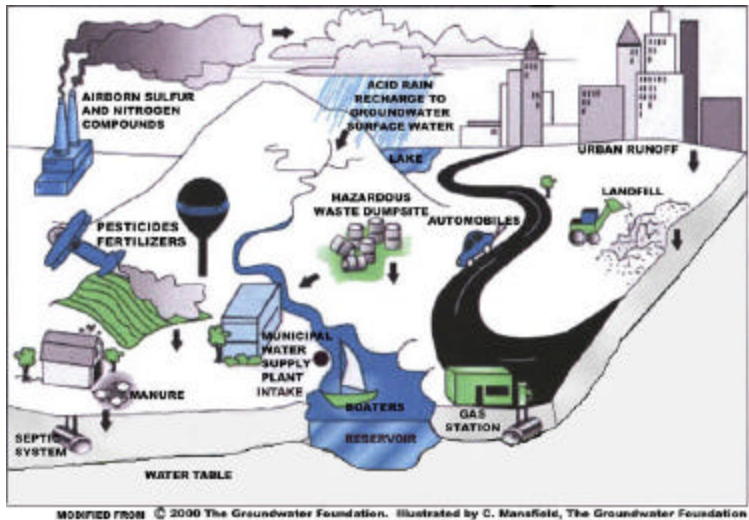


Figure 1: Sample watershed with examples of potential sources of contami-

Agricultural Recommendations:

- ✓ Work with farmers to make them aware of the water supply and to encourage the use of a U.S. Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ The Massachusetts Department of Food & Agriculture’s booklet titled “On-Farm Strategies to Protect Water Quality - An Assessment & Planning Tool for Best Management Practices” (December 1996) describes technical and financial assistance programs related to the control of erosion and to the management of nutrients, pests, manure, grazing and irrigation.
- ✓ Work with farmers to ensure that pesticides, fertilizers and manure are being stored within a structure designed to prevent runoff.

4. Residential Land Uses – Residential areas are common throughout the Zone II. Some of the areas have public sewers, and some use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic

systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet

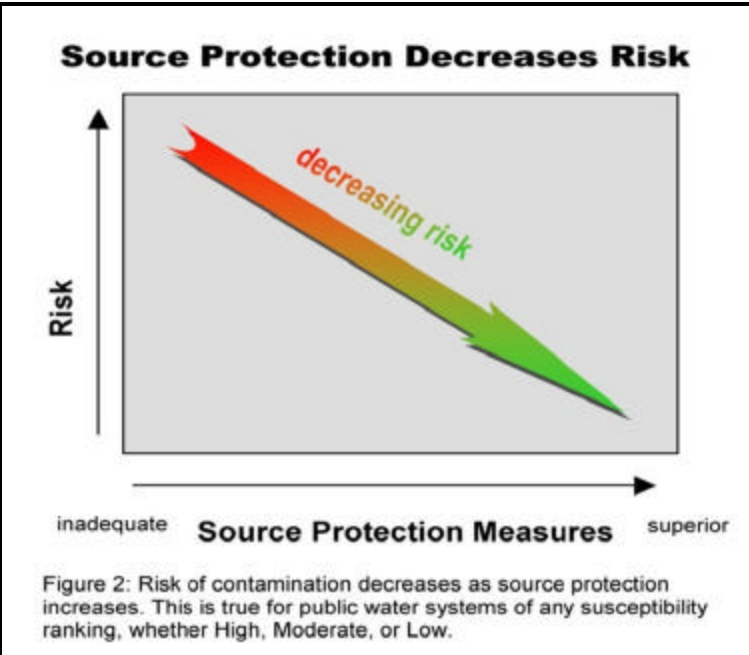
(Continued on page 7)

**When you wash your car in the driveway,
Remember
you're not just washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb, then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (IWPA and Zones II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat	Potential Source of Contamination
Agricultural			
Fertilizer Storage or Use	Few	M	Leaks, spills, improper handling, or over-application of fertilizers
Landscaping	1	M	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Manure Storage or Spreading	Few	H	Improper handling of manure (microbial contaminants)
Commercial			
Gas Stations	1	H	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	2	H	Spills, leaks, or improper handling of automotive fluids, and solvents
Cemeteries	2	M	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Funeral Homes	2	L	Spills, leaks, or improper handling of hazardous chemicals
Junk Yards and Salvage Yards	1	H	Spills, leaks, or improper handling of automotive chemicals, wastes, and batteries
Laundromats	1	L	Improper management of wash water
Railroad Tracks and Yards	1	H	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Industrial			
Electronics/Electrical Manufacturers	1	H	Spills, leaks, or improper handling or storage of chemicals and process wastes
Fuel Oil Distributors	2	H	Spills, leaks, or improper handling or storage of fuel oil
Residential			
Fuel Oil Storage (at residences)	100+	M	Spills, leaks, or improper handling of fuel oil
Lawn Care / Gardening	100+	M	Over-application or improper storage and disposal of pesticides
Septic Systems/ Cesspools	100+	M	Microbial contaminants, and improper disposal of hazardous chemicals

Activities	Quantity	Threat	Potential Source of Contamination
Miscellaneous			
Aquatic Wildlife	Numerous	L	Microbial contaminants
Clandestine (illegal) Dumping	Few	H	Debris containing hazardous materials or wastes
Landfills and Dumps	1	H	Seepage of leachate
Large Quantity Hazardous Waste Generators	1	H	Spills, leaks, or improper handling or storage of hazardous materials and waste
Oil or Hazardous Material Sites	11	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	2	M	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	1	M	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way	2	L	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	2	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	15	H	Spills, leaks, or improper handling of stored materials
Utility Substation Transformers	1	L	Spills, leaks, or improper handling of chemicals and other materials including PCBs
Very Small Quantity Hazardous Waste Generators	3	L	Spills, leaks, or improper handling or storage of hazardous materials and waste
Waste Transfer/ Recycling Stations	1	M	Improper management, seepage, and runoff of water contacting waste materials
Wastewater Treatment Plant/Collection Facility/Lagoon	1	M	Improper handling or storage of treatment chemicals or equipment maintenance materials; improper management of wastewater

Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

(Continued from page 4)

“Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.

- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

5. Transportation Corridors - Transportation corridors and other paved and unpaved local roads cross through the water supply protection area. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins.

Transportation Corridor Recommendations:

Work with the Town of Tewksbury to:

- ✓ Ensure that, wherever possible, drains discharge stormwater outside of the Zone I.
- ✓ Identify stormwater drainage systems along transportation corridors. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained. Review storm drainage maps with emergency response teams.
- ✓ Work with the Town and State to best manage stormwater in the Zone II. Best management practices include street sweeping, vegetative swales, and regular catch basin inspection, cleaning and maintenance.

6. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0002104, 3-0014152, 3-0001482, 3-0014315, 3-0001865, 3-0002797, and 3-0020216. Refer to the attached map and Appendix C for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

7. Protection Planning – The Town of Tewksbury, at the request of Tewksbury Hospital, passed a groundwater protection bylaw that meets DEP's Groundwater Protection regulations 310 CMR 22.21. Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Coordinate efforts with the Town of Andover to include Tewksbury Hospital's source protection area in local land use controls. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Other land uses and activities within the Zone II are included in Table 2. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, Tewksbury Hospital's Zone II contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

Tewksbury Hospital is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Working with the Town of Tewksbury to adopt a zoning bylaw that restricts land uses in the Zone II in accordance with DEP regulations
- Removing agricultural activities from the Zone I of both wells, and for monitoring and controlling these activities in the Zone II
- Pursuing ownership or control of land within the Zone I of both wells

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- 1 Reduces Risk to Human Health
- 2 Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- 3 Supports municipal bylaws, making them less likely to be challenged
- 4 Ensures clean drinking water supplies for future generations
- 5 Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	NO	To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements. Investigate options for gaining ownership or control of the Zone A.
Are the Zone Is posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone Is regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Monitor prohibited activities in Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town of Tewksbury passed a bylaw that meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Work with the Town of Andover to encourage them to adopt local controls that include Tewksbury Hospital's wellhead protection area.
Planning		
Does the PWS have a wellhead protection plan?	NO	Develop and implement a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	N/A	
Does the Board of Health conduct inspections of commercial and industrial activities?	Some	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	Some	Work with the Town of Tewksbury to increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial uses within the Zone II.

reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN TEWKSBURY HOSPITAL'S WATER SUPPLY PROTECTION AREA

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
368835	HEWLETT PACKARD CORP	165 DASCOMB RD	ANDOVER	PLANT	AIR QUALITY PERMIT
333216	ALLSCAPE LANDSCAPING CORP	94 PINNACLE RD	TEWKSBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
367815	EXXONMOBIL OIL CORP	1040 MAIN ST	TEWKSBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
126534	GETTY 30629	869 MAIN ST	TEWKSBURY	FULDSP	FUEL DISPENSER
308087	INTELLIGENT BIOCIDES	200 AMES POND DR	TEWKSBURY	PLANT	AIR QUALITY PERMIT
329832	J&S SUNOCO	1049 MAIN ST	TEWKSBURY	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
30144	MASSACHUSETTS ELECTRIC COMPANY	DOCK ST	TEWKSBURY	FULDSP	FUEL DISPENSER
310929	NEW ENGLAND METAL RECYCLING LLC	860 EAST ST	TEWKSBURY	HANDLR	VERY SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS
131103	TEWKSBURY HOSPITAL	365 EAST ST	TEWKSBURY	FULDSP	FUEL DISPENSER
338417	TEWKSBURY SEWER SERVICE	95 HELVETIA ST	TEWKSBURY	DISCH	MWRA SEWER CONNECTION

UNDERGROUND STORAGE TANKS WITHIN TEWKSBURY HOSPITAL'S WATER SUPPLY PROTECTION AREA

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
GETTY STATION #30629	869 MAIN ST	TEWKSBURY	GAS STATION	6000	GASOLINE
GETTY STATION #30629	869 MAIN ST	TEWKSBURY	GAS STATION	6000	GASOLINE
GETTY STATION #30629	869 MAIN ST	TEWKSBURY	GAS STATION	6000	GASOLINE
GETTY STATION #30629	869 MAIN ST	TEWKSBURY	GAS STATION	6000	GASOLINE
J & S AUTO SERVICE CENTER INC	1049 MAIN ST	TEWKSBURY	GAS STATION	6000	GASOLINE
J & S AUTO SERVICE CENTER INC	1049 MAIN ST	TEWKSBURY	GAS STATION	6000	GASOLINE
J & S AUTO SERVICE CENTER INC	1049 MAIN ST	TEWKSBURY	GAS STATION	6000	GASOLINE
J & S AUTO SERVICE CENTER INC	1049 MAIN ST	TEWKSBURY	GAS STATION	500	WASTE OIL
KRISTINA REALTY TRUST	1220 MAIN ST	TEWKSBURY	GAS STATION	12000	GASOLINE
KRISTINA REALTY TRUST	1220 MAIN ST	TEWKSBURY	GAS STATION	12000	GASOLINE
MOBIL R/S #11681	1040 MAIN ST	TEWKSBURY	GAS STATION	10000	GASOLINE
MOBIL R/S #11681	1040 MAIN ST	TEWKSBURY	GAS STATION	10000	GASOLINE
MOBIL R/S #11681	1040 MAIN ST	TEWKSBURY	GAS STATION	1000	WASTE OIL
MOBIL R/S #11681	1040 MAIN ST	TEWKSBURY	GAS STATION		1000
VERIZON MASSACHUSETTS 524706	6 ROBINSON AVE	TEWKSBURY	UTILITIES	600	DIESEL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Topsfield Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does not imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Topsfield Water Department
<i>PWS Address</i>	279 Boston Street
<i>City/Town</i>	Topsfield, Massachusetts 01983
<i>PWS ID Number</i>	3298000
<i>Local Contact</i>	William Wood - Superintendent
<i>Phone Number</i>	(978) 887-1517

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

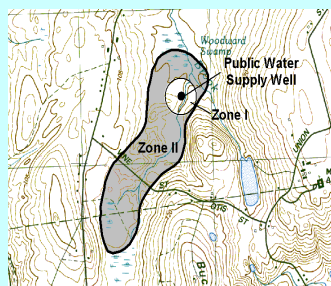
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

<i>Zone II #: 218</i>		<i>Susceptibility: Moderate</i>	
<i>Well Names</i>	<i>Source IDs</i>		
North Street Tubular Wellfield	3298000-01G		
<i>Zone II #: 219</i>		<i>Susceptibility: High</i>	
<i>Well Names</i>	<i>Source IDs</i>		
Perkins Row Tubular Wellfield	3298000-02G		

The Topsfield Water Department is supplied by two sources of groundwater; both sources are wellfields. The Zone I is a radius of 250 feet around each of the wells in the wellfields. The wells for the Topsfield Water Department are located within two separate water supply protection areas, both of which are located entirely within the Town of Topsfield. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone IIs for Topsfield are primarily a mixture of residential, forested, and wetlands land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous Materials Storage and Use
3. Residential Land Uses
4. Transportation Corridors
5. Comprehensive Wellhead Protection Planning

The ranking of susceptibility to contamination for the North Street Tubular Wellfield Zone II is moderate, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2. The ranking of susceptibility to contamination for the Perkins Row Tubular Wellfield Zone II is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone Is – The Zone I for each of the wellfields is a 250-foot radius around each well in the wellfield. Massachusetts drinking water regulations (310 CMR 22.00) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply

activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for the North Street Tubular Wellfield (01G) contains a portion of two residential properties.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Hazardous Materials Storage and Use – Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground and Aboveground storage tanks (USTs and ASTs). If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP's for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.

- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

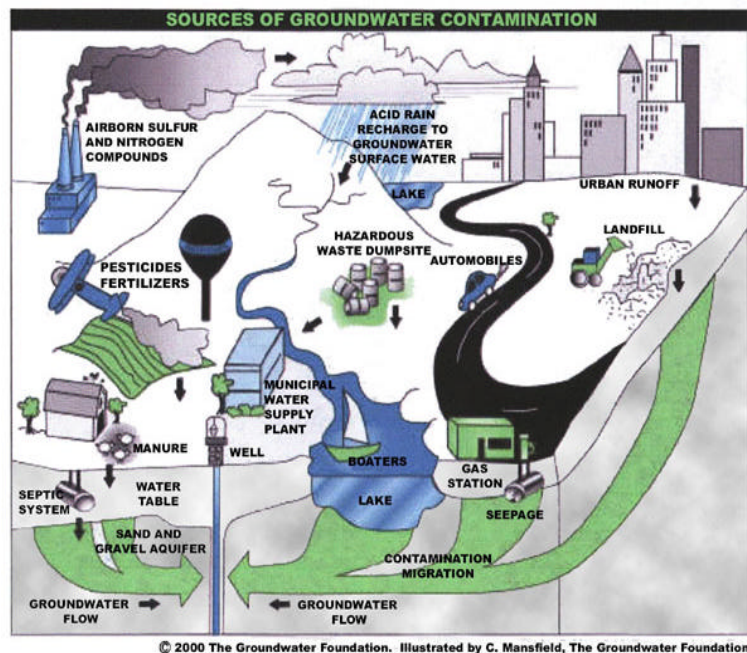
3. Residential Land Uses – Approximately 45% of the combined water supply protection areas consists of residential areas. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they could be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

What are "BMPs?"

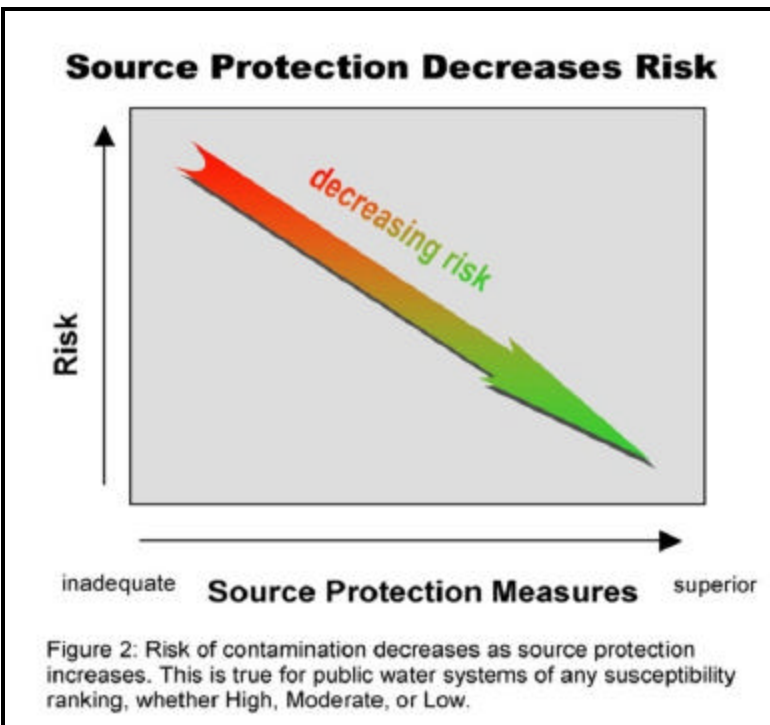
Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

4. Transportation Corridors - State and local roads are common in Zone IIs. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include contaminants from automotive leaks, maintenance, washing, or accidents.

Transportation Corridor Recommendations:

- ✓ Regularly inspect Zone IIs for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Promote BMPs for stormwater management and pollution controls.



5. Protection Planning – Currently, the Town of Topsfield is in the process of adopting water supply protection controls. When the process is complete, they will be reviewed to see that they meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Commercial				
Auto Repair Shops/ Service Stations	2	H	219	Automotive fluids, and solvents: spills, leaks, or improper handling
Cemeteries	1	M	218	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Residential				
Fuel Oil Storage (at residences)	Numerous	M	218, 219	Fuel oil: spills, leaks, or improper handling
Lawn Care/ Gardening	Numerous	M	218, 219	Pesticides and Fertilizers: over-application or improper storage and disposal
Septic Systems/ Cesspools	Numerous	M	218, 219	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous				
Aquatic Wildlife	Numerous	L	218, 219	Microbial contaminants
Stormwater Drains/ Retention Basins	Numerous/ Several	L	218, 219	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	1	M	218, 219	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	4	H	219	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	2	L	219	Spills, leaks, or improper handling or storage of hazardous materials and waste

Water Supply Protection Area % that is Sewered = 0%

Notes:

- When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
- For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
- For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.

THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Installation of a SCADA system that will improve system monitoring
- Increased protection planning through the development of local wellhead protection bylaw
- Proposal to fence wellfields

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect Zone Is regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone IIs and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Develop and implement a Wellhead Protection Plan.

Resources for Drinking Water Source Protection:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - Increased groundwater monitoring and treatment
 - Water supply clean up and remediation
 - Replacing a water supply
 - Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES (Perkins Row Wellfield)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (North Street Wellfield)	
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES (Perkins Row Wellfield)	Continue monitoring for non-water supply activities in Zone I.
	NO (North Street Wellfield)	Monitor non-water supply activities in Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO	Submit final "Aquifer Protection District" bylaw to DEP to ensure that it meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	N/A	
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	SOME	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the Zone II.

Conclusions:

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN TOPSFIELD WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
327047	COUNTRY MOTORS	107 IPSWICH ROAD	TOPSFIELD		INDUSTRIAL WASTE WATER HOLDING TANK
327047	COUNTRY MOTORS	107 IPSWICH ROAD	TOPSFIELD	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
327047	COUNTRY MOTORS	107 IPSWICH ROAD	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
328296	TOPSFIELD TIRE & LUBE	368 BOSTON STREET	TOPSFIELD	HANDLER	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
328296	TOPSFIELD TIRE & LUBE	368 BOSTON STREET	TOPSFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
293430	TURNPIKE SERVICES II, INC.	368 BOSTON STREET	TOPSFIELD	FUEL DISPENSER	FUEL DISPENSER STAGEII

UNDERGROUND STORAGE TANKS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
TURNPIKE SERVICES II, INC.	368 BOSTON STREET	TOPSFIELD	GAS STATION	10000	GASOLINE
TURNPIKE SERVICES II, INC.	368 BOSTON STREET	TOPSFIELD	GAS STATION	8000	GASOLINE
TURNPIKE SERVICES II, INC.	368 BOSTON STREET	TOPSFIELD	GAS STATION	8000	GASOLINE
TURNPIKE SERVICES II, INC.	368 BOSTON STREET	TOPSFIELD	GAS STATION	1000	WASTE OIL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.



Massachusetts Department of Environmental Protection Source Water Assessment and Protection (SWAP) Report for Eagle Tor Trust

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource
Protection,
Drinking Water Program

Date Final Prepared:
September 19, 2003

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Eagle Tor Trust
<i>PWS Address</i>	46 Wenham Road
<i>City/Town</i>	Topsfield, Massachusetts 01983
<i>PWS ID Number</i>	3298002
<i>Local Contact</i>	Henry Clark
<i>Phone Number</i>	(617) 887-4063

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Sleepy Hollow Tubular Wells	3298002-01G	250	532	Moderate
Bedrock Well	3298002-02G	216	532	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

Eagle Tor Trust maintains and operates two public water supply sources located within the Ipswich River basin. The Tubular Wells have a Zone I radius of 250 feet and an Interim Wellhead Protection Area (IWPA) radius of 532 feet. The Bedrock Well has a Zone I radius of 216 feet and an Interim Wellhead Protection Area (IWPA) radius of 532 feet. These wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. Activities in Zone I
2. Residential Land Uses

The overall ranking of susceptibility to contamination for the well is moderate, based on the presence of at least one moderate threat land use or activity in the IWPA, as seen in Table 2.

1. Activities in Zone Is – Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The Zone I for Eagle Tor Trust's Zone Is contain a residence with an on-site septic system.

Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Residential Land Uses – Approximately 37% of the IWPA consists of residential areas. All of the residences have on-site septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- ◆ **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Fuel Oil Storage (at residences)	No	Bedrock Well, Tubular Wells	Moderate	Spills, leaks, or improper handling of fuel oil
Lawn Care / Gardening	Yes	Bedrock Well, Tubular Wells	Moderate	Over-application or improper storage and disposal of pesticides
Septic Systems / Cesspools	Yes	Bedrock Well, Tubular Wells	Moderate	Microbial contaminants, and improper disposal of hazardous chemicals

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

- ◆ **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- ◆ **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- ◆ **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Protection Recommendations

Implementing protection measures and BMPs will reduce the Sleepy Hollow Tubular Wells’ and Bedrock Well’s susceptibility to contamination. Eagle Tor Trust should review and adopt the key recommendations above and the following:

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include landscapers and certified operator. Post labels as appropriate on raw materials and hazardous waste.
- ✓ Post drinking water protection area signs at key visibility locations.

Planning:

- ✓ Work with local officials in Topsfield to include the Eagle Tor Trust’s IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.

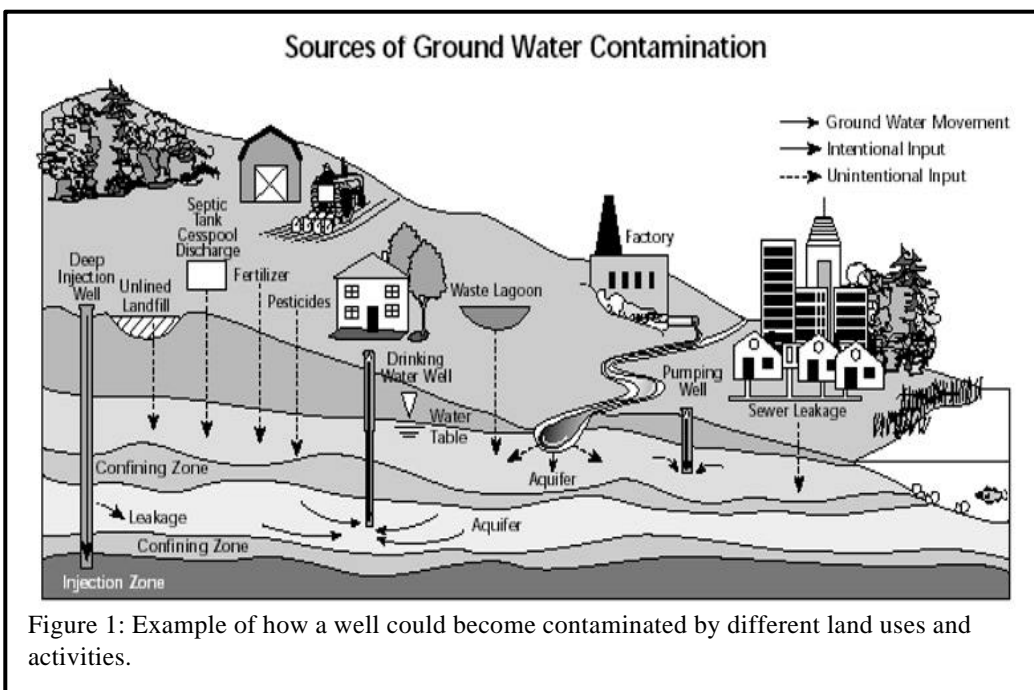


Figure 1: Example of how a well could become contaminated by different land uses and activities.

- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed for the Key Issues above.

For More Information:

Contact Anita Wolovick in DEP's NERO at (617) 654-6535 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:
www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, and town boards.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the IWPAs. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Fact Sheet
- Additional Documents on Source Protection



Source Water Assessment Program (SWAP) Report For River Crossing Condominiums

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource
Protection,
Drinking Water Program

Date DRAFT Prepared:
February 14, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	River Crossing Condominiums
<i>PWS Address</i>	Village Lane
<i>City/Town</i>	Tyngsboro
<i>PWS ID Number</i>	2301002
<i>Local Contact</i>	Christopher Yule
<i>Phone Number</i>	(978) 649-2700

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2301002-01G	238	584	Moderate
Well #2	2301002-02G	238	584	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

River Crossing Condominiums gets its water supply from two 3.5 inch gravel packed wells. The wells are located southeast of the abutting Curtis Hill Condominiums next to the same wetland as the two wells that serve Curtis Hill Condominiums. Each well has a Zone I of 238 feet and an Interim Wellhead Protection Area (IWPA) of 584 feet. The wells for River Crossing Condominiums are interconnected with those for Curtis Hill. Located in the same area are a well and pump house for River Crossing Condominiums. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached Map of the Zone I and IWPA. The well serving the facility receives treatment for corrosion control. For current information on monitoring results and

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

treatment and for a copy of the most recent Consumer Confidence Report, please contact the Public Water System contact person listed above in Table 1.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone I;**
2. **An Aboveground Storage Tank (AST) for Heating Oil;**
3. **Septic system; and**
4. **Aquatic wildlife**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of at least one moderate threat land use or activity in the IWPA, as seen in Table 2 below.

1. **Zone I** – Currently, the Zone I for the wellfield does not meet DEP's restrictions, which only allow water supply related activities in Zone I. The facility's Zone I contains private homes with the access roads leading to them. The public water supplier does not own and/or control all land encompassed by the Zone Is. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Do not use fertilizers, pesticides or road salt within the Zone I.

2. **Aboveground Storage Tank (AST) containing fuel oil** – The private residences have ASTs. The houses are new, so the ASTs are new and meet fire safety standards. If managed improperly, Aboveground Storage Tanks can be a potential contaminant source due to leaks or spills of the fuel oil they store.

3. **Septic systems** – Septic systems are located within the IWPA of the wells. If improperly used and/or maintained septic systems are a potential source of

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Driveway & road	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Septic System	No	Yes	Moderate	See septic systems brochure attached
Fuel Storage Above Ground	No	Yes	Moderate	Tanks are on paved surface in the basement
Aquatic wildlife	Yes	Yes	Low	Wells located next to a pond

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

contamination in groundwater. Residents and maintenance staff should be instructed on proper disposal of spent household chemicals.

4. **Aquatic Wildlife** – A pond is located within the Zone I and IWPA. Ducks and other waste in and around the pond is a potential source of contamination in the water supply.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. River Crossing Condominiums should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Prohibit public access to the well by gating roads and posting signs.
- ✓ Redirect road and parking lot drainage in the Zone I away from well.
- ✓ Do not use fertilizers, pesticides or road salt within the Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Work with your community to ensure that stormwater runoff is directed away from the well and is treated according to DEP Stormwater guidance.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at <http://www.dep.state.ma.us/dep/bwp/dhm/dhmpubs.htm>
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

Planning:

- ✓ Work with local officials in Tyngsboro to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply

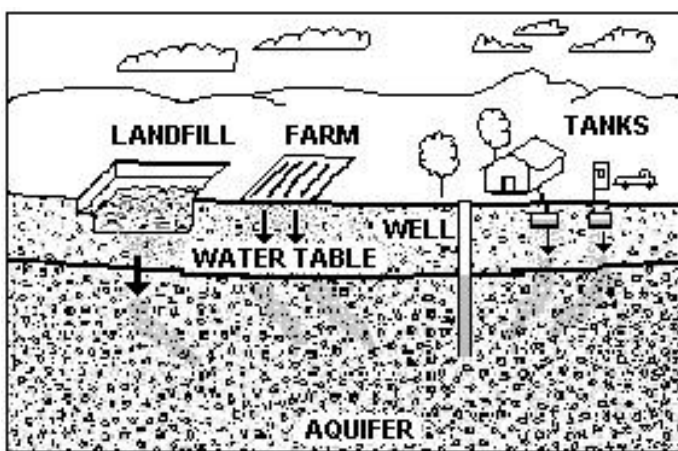


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:
www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet -'01 (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide and Fertilizer Use Factsheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form



Source Water Assessment Program (SWAP) Report For Benchmark Estates Condominiums

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
November 21, 2002

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Benchmark Estates Condominium Trust
<i>PWS Address</i>	Sherbourne Avenue
<i>City/Town</i>	Tyngsboro, Massachusetts
<i>PWS ID Number</i>	2301008
<i>Local Contact</i>	Deborah Bray
<i>Phone Number</i>	

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #2	2301008-04G	231	566	Moderate
Well #3	2301008-05G	231	566	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

Benchmark Condominiums obtains its water supply from two wells. Each well has a Zone I of 231feet and an Interim Wellhead Protection Area (IWPA) of 566 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

The well serving the facility is treated to remove radon and uranium. For current information on monitoring results and treatment, and a copy of the most recent Consumer

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

Confidence Report, please contact the Public Water System contact person listed above in Table 1. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone Is;**
2. **Golf Course; and**
3. **Septic system.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of only moderate threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone Is** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone Is contain buildings, roads, part of a golf course, and parking areas. The public water supplier does not own and/or control all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
 - ✓ Do not use or store pesticides, or fertilizers within the Zone I.
 - ✓ If Benchmark Estates Condominium Trust intends to continue utilizing the structures and parking areas in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.
2. **Recreational Activities** –A golf course is located within the protection area of the wells. Improper storage, handling, and overapplication of pesticides and fertilizers can be potential sources of contamination.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Parking lot, driveways & roads	Both	Both	Moderate	Limit road salt usage and provide drainage away from wells
Recreational activity	Well #2	Both	Moderate	Golf course - Fertilizer & Pesticide use
Septic System	No	Both	Moderate	See septic systems brochure in the appendix
Structures	Both	Both	-	Non-water supply structures in Zone I

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Recommendations:

- ✓ Initiate conversation with the golf course owner regarding their operations within the Zone I of your well.
- ✓ Request that no fertilizer or pesticides be applied within the Zone I of your well. The Golf Course must comply with the pesticide Board regulations that govern the application of pesticides within the Zone I and IWPA of public supply wells.

- 3. Septic system-** The septic system is located within the IWPA. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

Recommendations:

- ✓ Residents should be instructed on the proper disposal of spent household chemicals. Include custodial staff, groundskeepers, and certified operator.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the wells' susceptibility to contamination. Benchmark Estates Condominium Trust should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.

Training and Education:

- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Notify residents within the Zone I with a flyer or letter about the location of the well and source protection.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/bwp/dhm/dhmpubs.html.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.

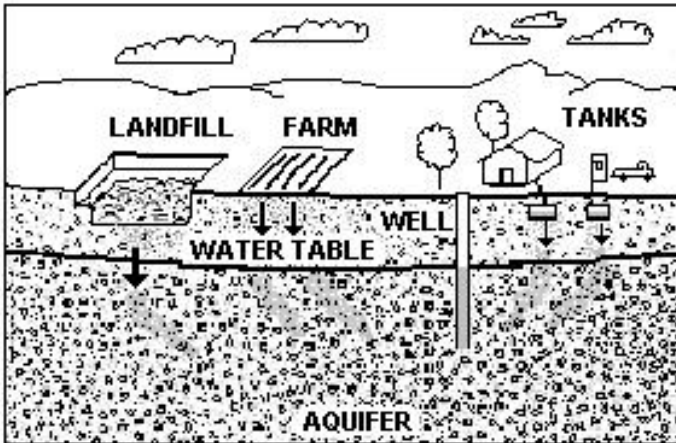


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at (508) 792-7650 x 4030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier and town boards.

Planning:

- ✓ Work with local officials in Tyngsboro to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Protection Grant Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet. Please note: each program year the Department posts a new Request for Response for the Grant program (RFR). Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at <http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf>.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form

Source Water Assessment Program (SWAP) Report For HUSSEY PLASTIC



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
September 13, 2000

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	HUSSEY PLASTIC
<i>PWS Address</i>	26 CUMMINGS ROAD
<i>City/Town</i>	TYNGSBORO
<i>PWS ID Number</i>	2301018
<i>Local Contact</i>	STEVE WILSON
<i>Phone Number</i>	(978) 649-7345

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2301018-01G	100	410	High

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

Maintaining Your Good Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contaminant, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attached Map of the Protection Areas

1. Description of the Water System

The well for the facility is located on the north side of the on-site building. The Hussey Plastic well has a Zone I of 100 feet and an Interim Wellhead Protection Area (IWPA) of 410 feet. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

The well serving the facility has no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate activities in Zone Is;**
2. **Plastics manufacturing;**
3. **Septic system;**
4. **Railroad tracks;**
5. **Aquatic wildlife.**

The overall ranking of susceptibility to contamination for the well is High, based on the presence of at least one high threat land use or activity in the IWPA.

1. **Zone I-** Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone I contains the on-site building, parking areas, and railroad tracks. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Do not use fertilizers or road salt within the Zone I.

2. **Plastics manufacturer** – The facility is a plastics manufacturer, specifically injection moulding. Some of the chemicals used in their manufacturing processes are potential sources of contamination to the water supply, if improperly handled, or in case of leaks and spills.

Recommendation:

- ✓ Use BMPs to ensure the proper handling and storage of hazardous materials.

3. **Septic system** – The septic system is pumped annually. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

Recommendations:

- ✓ Staff should be instructed on the proper disposal of spent household chemicals. Include custodial staff, groundskeepers, and certified operator.

Table 2: Table of Activities within the Water Supply Protection Areas

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Plastics manufacturer	Parking areas	Yes	Yes	Moderate	Limit use of road salts.
	Plastic manufacturer	Yes	Yes	High	Hazardous chemical use
	Septic system	No	Yes	Moderate	See septic system brochure in the appendix
	Railroad tracks	Yes	Yes	High	Spills of hazardous chemicals; pesticide use for vegetation control.
	Aquatic wildlife	No	Yes	Low	Merrimack River

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

4. **Railroad tracks** – Railroad corridors serving passenger and/or freight trains are potential contaminant sources due to chemicals released during normal use, track maintenance, and accidents. Normal maintenance of railroad rights of way can introduce contaminants to a water supply through herbicide application for vegetation control. Accidents can release spills or engine fluids and commercially transported chemical.

Recommendation:

✓ Contact your local Board of Health to ensure that the IWPA is included in right of way pesticide management planning.

✓ Contact local fire department to ensure that the IWPA is included in Emergency Response Planning

5. **Aquatic wildlife** – The Merrimack River is located within the IWPA. Ducks and other wildlife waste in and around the river are potential sources of contamination in the water supply.

Recommendation:

✓ Discourage wildlife by prohibiting the feeding of ducks and wildlife.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Hussey Plastics should review and adopt the following recommendations at the facility:

Zone I:

✓ Do not use pesticides or road salt within the Zone I.

✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.

✓ Consider well relocation if Zone I threats cannot be mitigated.

Training and Education:

✓ Instruct staff on proper hazardous material use, disposal, emergency response, and best management practices. Post drinking water protection area signs at key visibility locations.

Facilities Management:

✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.

Planning:

✓ Work with local officials in Tyngsboro to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.

✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.

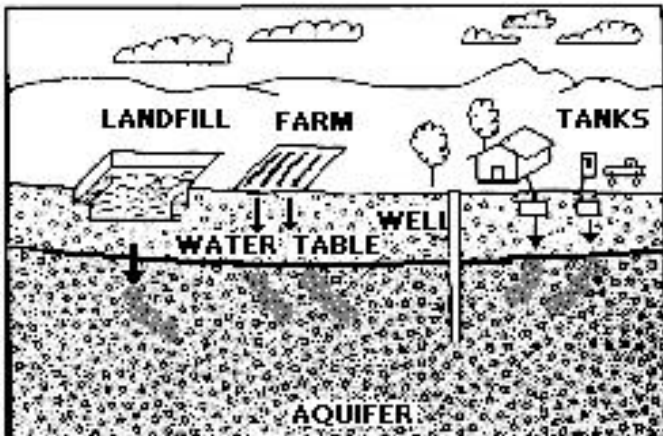


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact [Josephine Yemoh-Ndi](#) in DEP's [Worcester Office](#) at [\(508\) 792-7650 x 4030](#) for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:
www.state.ma.us/dep/brp/dws.

Copies of this assessment have been provided to the water department, town boards, and the local media.

- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- [Map of the Public Water Supply \(PWS\) Protection Area.](#)
- [Recommended Source Protection Measures Factsheet](#)
- [Your Septic System Brochure](#)
- [Source Protection Sign Order Form](#)
- [Source Protection Sign Order Form](#)



**Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
For
PICONICS**

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
October 10, 2003

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	PICONICS
<i>PWS Address</i>	25 CUMMINGS ROAD
<i>City/Town</i>	TYNGSBOROUGH, MASSACHUSETTS
<i>PWS ID Number</i>	2301019
<i>Local Contact</i>	PAUL RICHTER
<i>Phone Number</i>	(978) 649-7501

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2301019-01G	144	444	High

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The well for Piconics is located east of the on-site building, between the building and Route 3. The well has a Zone I of 144 feet and an Interim Wellhead Protection Area (IWPA) of 444 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

The well serving the facility has no treatment at this time. The water from the well is pumped to a 20-gallon hydropneumatic storage tank. From the storage tank the water passes through filter cartridges to remove particles, taste and odor. The DEP requires

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

public water suppliers to monitor the quality of the water. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone I;**
2. **Transportation Corridor;**
3. **Underground Storage Tank;**
4. **Chemical Storage;**
5. **Machine/metal working shop; and**
6. **Small Quantity Generator.**

The overall ranking of susceptibility to contamination for the well is high, based on the presence of at least one high threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone I** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone I. The facility's Zone I contains the on-site building which is used for industrial purposes and parking areas. The public water supplier does not own and/or control all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
 - ✓ Do not use pesticides or road salt within the Zone I.
2. **Transportation corridor** - Route 3 is located within the IWPA of the well. Interstate highways are potential sources of contamination due to salting of roadways and leaks or spills of fuels and other hazardous materials during accidents.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Transportation Corridor	No	Yes	Moderate	Route 3
Underground Storage Tank	No	Yes	High	Fuel oil tank
Parking lot, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Machine/metal working shop	Yes	Yes	High	Chemical use and storage
Small Quantity Generator	Yes	Yes	Moderate	Removed by a licensed hauler
Hazardous material use & storage	No	Yes	High	Chemicals used in their every day activities.
Structures	All Wells	All Wells	-	Non-water supply structures in Zone I

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Recommendation:

- ✓ Contact local fire department to ensure that the IWPA is included in Emergency Response Planning

3. Small Quantity Generator/Industrial manufacturing - The building is used for manufacturing. As a result of the daily operations at the site, small quantities of hazardous waste are generated. The waste is removed periodically by a licensed hauler. If improperly handled, or in case of leaks or spills, the chemicals used in their manufacturing processes can potentially contaminate the water supply.

Recommendation:

- ✓ Use Best Management Practices in handling the chemicals.

4. Landfill – A landfill falls within the IWPA of the well. If improperly disposed of, leachate from the landfill can leach into groundwater and potentially contaminate the water supply.

Recommendations:

- ✓ Notify the landfill owner that part of the facility is located in a public water supply protection area.
- ✓ Work with the landfill owner to be sure that best management practices are used for proper handling of materials and in containing spills and leaks.

5. Septic systems - The septic system is located within the IWPA of the well. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

Recommendations:

- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.
- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator. Post labels as appropriate on raw materials and hazardous waste.

6. Hazardous material use & storage- Chemicals used in their every day operations are stored in a locked and properly labeled metal cabinet. If improperly handled, spills or leaks could potentially contaminate the water supply.

Recommendation:

- ✓ Continue to use BMPs to ensure the proper handling and storage of hazardous materials.

7. Underground Storage Tank (UST) – A UST with heating oil is located within the IWPA. Leaks and or spill of fuel oil are a potential source of contamination to the water supply.

Recommendation:

- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices. Any modifications to the UST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding USTs.

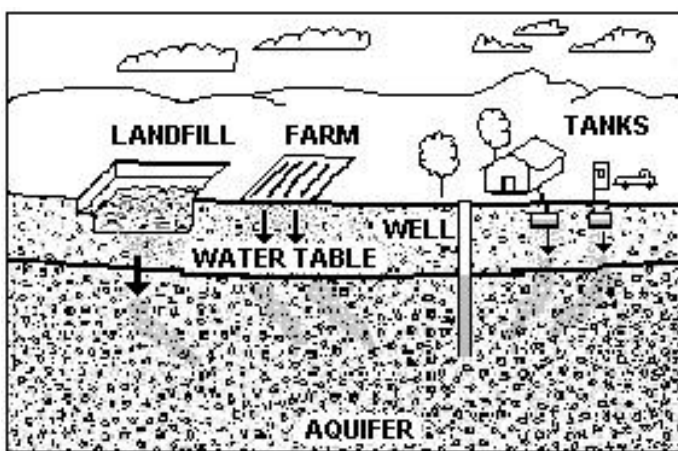


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at (508) 792-7650 x4030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/ including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier and town boards.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Piconics should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Since Piconics intends to continue utilizing the structures in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, refer to <http://www.state.ma.us/dep/bwp/dhm/files/sqgsum.pdf> for the Requirements for Small Quantity Generators.

Planning:

- ✓ Work with local officials in Tyngsboro to include the facility's IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure

Source Water Assessment Program (SWAP) Report For Colony Heights Condominiums



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
July 9, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Colony Heights Condominiums
<i>PWS Address</i>	33 Sherburne Avenue
<i>City/Town</i>	Tyngsboro
<i>PWS ID Number</i>	2301020
<i>Local Contact</i>	David Whelan
<i>Phone Number</i>	(978) 649-3350

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2301020-01G	242	596	Moderate
Well #2	2301020-02G	242	596	Moderate
Well #3	2301020-03G	242	596	Moderate

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? **Assess the susceptibility of drinking water** sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The well for Colony Heights Condominiums is located behind the on-site building that is closest to Sherbourne Avenue. The well has a Zone I of 242 feet and an Interim Wellhead Protection Area (IWPA) of 596 feet. There are two other wells at the site that are inactive and each well has a Zone I of 242 feet and an IWPA of 596 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

The well serving the facility has no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused.

Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone Is;**
2. **Septic systems within the Zone Is and IWPA's;**
3. **A golf course within the Zone Is and IWPA's; and**
4. **Transportation corridor;**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of moderate threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone I** – Currently, the wells do not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone I contains buildings, roads (Sherbourne Avenue and the on-site access road), parking areas, golf course and recreational activities (playground and a tennis court). The public water supplier does not own and/or control all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone Is.
- ✓ If the facility intends to continue utilizing the structures in the Zone 1, use BMPs and restrict activities that could pose a threat to the water supply.

2. **Septic systems** – Three septic systems belonging to the condominium complex and a private home across Sherbourne Avenue are within the Zone I and IWPA of the water supply. The septic systems are pumped once a year. If septic systems are not properly maintained, they can be the source of nitrate and microbial contamination.

Recommendations:

- ✓ Residents should be trained on proper disposal of spent household chemicals and encouraged to participate in local Household Hazardous waste collections.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information on septic systems.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Parking lot, driveways & roads	All wells	All wells	Moderate	Limit road salt usage and provide drainage away from wells
Golf course	All wells	All wells	Moderate	Fertilizer and pesticide use
Septic System	All wells	All wells	Moderate	See septic systems brochure in the appendix
Transportation corridor	No	All wells	Moderate	Limit road salt usage, have emergency plan
Aquatic wildlife	All wells	All wells	Low	Stream

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

3. **Golf course** – A golf course is located within the Zone I and IWPA of the wells. Improper handling, over-application, spills or leaks of fertilizers and pesticides could potentially contaminate the water supply.

Recommendation:

- ✓ No fertilizers or pesticides should be applied to the area of the golf course that falls within the Zone I.
- ✓ Encourage Best Management Practices for pesticides and fertilizers within the IWPA.

4. **Transportation corridor** – Pawtucket Boulevard, a heavily traveled road, is located within the IWPA of the water supply well. Transportation corridors are a potential source of contamination from road salt and or accidental leaks or spills of chemicals.

Recommendation:

- ✓ Work with the town on proper hazardous material transportation, disposal, emergency response and best management practices..

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Colony Heights Condominiums should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.

Training and Education:

- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.
- ✓ Well casing should extend above ground.

Planning:

- ✓ Work with local officials in Tyngsboro to include the condominium's IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

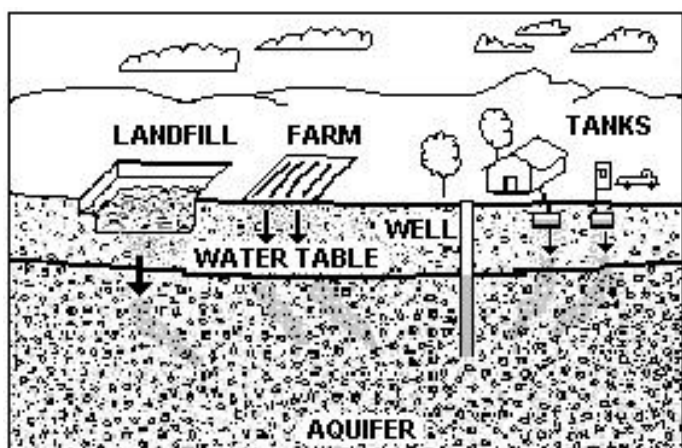


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:
www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/ including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

Funding:

The Department's Wellhead Protection Grant Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet from last year (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form



Source Water Assessment Program (SWAP) Report For MIT Haystack Observatory

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource
Protection,
Drinking Water Program

Date Prepared:
June 26, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	MIT Haystack Observatory
<i>PWS Address</i>	Route 40
<i>City/Town</i>	Tyngsboro, Massachusetts
<i>PWS ID Number</i>	2301023
<i>Local Contact</i>	Savas Danos
<i>Phone Number</i>	(978) 486-3104

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well # 1	2301023-01G	149	441	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The well for the facility is located on the premises. The well has a Zone I of 149 feet and an Interim Wellhead Protection Area (IWPA) of 441 feet. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

The well serving the facility has no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone Is;**
2. **An Aboveground Storage Tank (AST) With Heating Oil;**
3. **Septic system within the IWPA; and**
4. **Research laboratory.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of only moderate threat land uses or activities in the IWPA, as seen in Table 2.

1. **Zone I** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone I contains the building, access road, floor drains for blow down water and parking areas. The public water supplier owns and controls all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ If the observatory plans to continue to use the parking areas, road and buildings within the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.

2. **Aboveground Storage Tank (AST)** – There is an AST located on the concrete floor in the boiler room. If managed improperly, Aboveground Storage Tanks can be a potential source of contamination due to leaks or spills of the chemicals they store.

Recommendations:

- ✓ Aboveground storage tanks in your IWPA should be located on an impermeable surface, and also contained in an area large enough to hold 110% of the complete liquid volume, should a spill occur.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Parking spaces, access road	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Septic System	No	Well #3	Moderate	See septic system brochure
Fuel Storage Above Ground	Yes	Yes	Moderate	Tank is on broken pavement, should be on an impervious surface
Research laboratory	Yes	Yes	Moderate	
Structures	Yes	Yes	-	Non-water supply structures in Zone I

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

containment and safety practices. Any modifications to the AST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding ASTs.

- 3. Research laboratory** - The facility belongs to MIT, and is used as a research facility. Improper handling or disposal of any chemicals used is a potential source of contamination.

Recommendation:

- ✓ Use BMPs for the proper handling, storage, and disposal of chemicals used at the research facility.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. MIT Haystack should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers and certified operator.
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.

- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property. .
- ✓ Bring the floor drain into compliance with DEP Regulations (refer to attachment "Industrial Floor Drain Brochure").
- ✓ Floor drains in areas where hazardous materials or wastes might reach them need to drain to a tight tank, be sealed, or be connected to a sanitary sewer.
- ✓ Identify the discharge point of the floor drains.

Planning:

- ✓ Work with local officials in Tyngsboro, Westford and Groton to include the MIT Haystack IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional

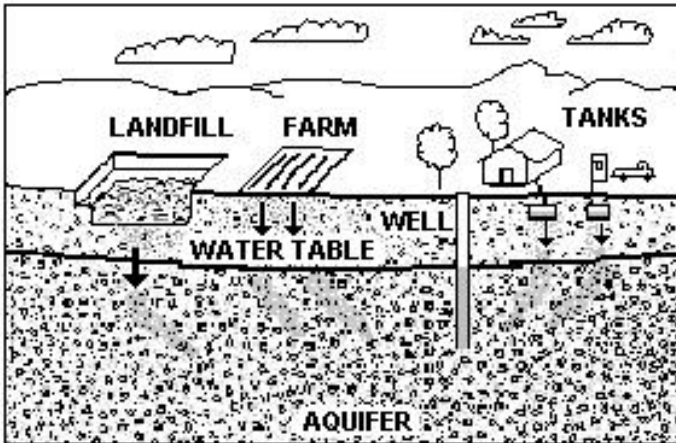


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:
www.state.ma.us/dep/brp/dws/

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Source Protection Sign Order Form

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix



Source Water Assessment Program (SWAP) Report For Pine Knoll Apartments

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource
Protection,
Drinking Water Program

Date Prepared:
April 17, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Pine Knoll Apartments
<i>PWS Address</i>	400 Dunstable Road
<i>City/Town</i>	Tyngsboro
<i>PWS ID Number</i>	2301027
<i>Local Contact</i>	Bob Bavota
<i>Phone Number</i>	(781) 862-1633

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2301027-01G	220	541	High
Well #2	2301027-02G	220	541	High
Well #3	2301027-03G	220	541	High

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

Pine Knoll Apartments get its water supply from three rock wells. Well #1 is located to the southeast of the on-site building, Well #2 is located in a pit to the northeast of well #1, and Well #3 is located to the northeast of the on-site building, near the parking lot. Each of the three wells has a Zone I of 220 feet and an Interim Wellhead Protection Area (IWPA) of 541 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA. The wells serving the facility have no treatment at this time. For current information on monitoring results and treatment, and for a copy of the most recent Consumer Confidence Report please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone Is;**
2. **Dry cleaner;**
3. **Septic system; and**
4. **Landscaping and lawncare.**

The overall ranking of susceptibility to contamination for the well is High, based on the presence of at least one high threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone I** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone I. The facility's Zone I contains buildings, roads, and parking areas. The public water supplier does not own and/or control all land encompassed by the Zone 1. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Do not use fertilizers or road salt within the Zone I.

2. **Dry cleaner** – A dry cleaner is located within the IWPA of the water supply. If the dry cleaning solvents were managed improperly and leaked into the ground, they could potentially contaminate the water supply.

Recommendation:

- ✓ Work with the dry cleaner to ensure that they use Best Management Practices in handling dry cleaning solvents.

3. **Septic system** – The septic system for the facility is located within the IWPA of all the wells. The septic system is a potential source of contamination for the water supply if not properly maintained or if hazardous materials are improperly disposed of into the septic system.

Recommendations:

- ✓ Septic system components should be located, inspected, and maintained on a

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Dry cleaner	No	All	High	Solvent (Perchloroethylene) use
Road	All	All	Moderate	Limit road salt usage and provide drainage away from wells
Parking area	Well #3	Well #3	Moderate	Limit road salt usage and provide drainage away from wells
Landscaping and lawncare	All	All	Moderate	Fertilizer use
Septic system	No	All	Moderate	See septic systems brochure in the appendix

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

regular basis. Refer to the appendices for more information regarding septic systems.

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.

4. **Landscaping and lawn care** - The wells are located in a well-landscaped and fertilized lawn. Fertilizers or pesticides applied to the lawn can leach into groundwater and potentially contaminate the water supply.

Recommendation:

- ✓ Do not use fertilizers or pesticides in the Zone I.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Pine Knoll Apartments should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.
- ✓ Do not use road salt within the Zone I.

Training and Education:

- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer on facility property.

Planning:

- ✓ Work with local officials in Tyngsboro to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

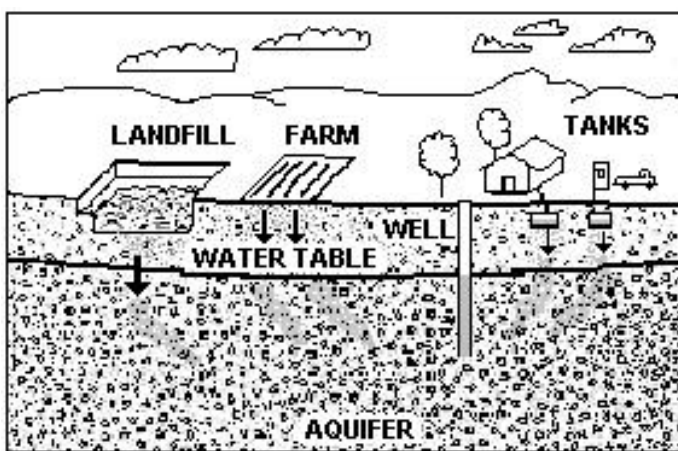


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet from last year (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix



Source Water Assessment Program (SWAP) Report For Bridgecrest Condominiums

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource
Protection,
Drinking Water Program

Date Prepared:
April 17, 2001

Table 1: Public Water System (PWS) Information

PWS NAME	Bridgecrest Condominiums
PWS Address	14 Centercrest Drive
City/Town	Tyngsboro
PWS ID Number	2301033
Local Contact	Donna Michaels
Phone Number	(978) 598-2776

Well Name	Source ID#	Zone I (in feet)	IWPA (in feet)	Source Susceptibility
Well #1	2301033-01G	214	527	Moderate
Well #2	2301033-02G	214	527	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The two wells for the facility are located to the west of the condominium buildings, just west of the access road to the condominium complex. Each of the wells has a Zone I of 214 feet and an Interim Wellhead Protection Area (IWPA) of 527 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA. The well serving the facility is treated by ion exchange to remove hardness. For current information on monitoring results and treatment and for a copy of the most recent Consumer Confidence Report, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone I;**
2. **Septic systems;**
3. **Transportation corridor;**
4. **Lawncare; and**
5. **Aquatic wildlife.**

The overall ranking of susceptibility to contamination for the wells is Moderate, based on the presence of at least one moderate threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone I** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone I. The facility's Zone I contains buildings, parking areas, and the access roads onto the complex. The public water supplier does not own and/or control all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

2. **Septic systems** – Septic systems are located within the IWPA of both wells. If improperly used and maintained, septic systems are a potential source of contamination in groundwater and the water supply.

Recommendations:

- ✓ Residents and maintenance staff should be instructed on proper disposal of spent household chemicals.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Parking lot, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Septic System	No	Yes	Moderate	See septic systems brochure in the appendix
Transportation corridor	No	Yes	Moderate	Route 3A-accidental spills from cars and road salt
Lawncare	Yes	Yes	Moderate	Fertilizer use
Aquatic wildlife	Yes	Yes	Low	Potential source of microbial contamination

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

3. **Transportation corridor** – Is located within the IWPA. Route 3A is one of the main roads through the town, which increases the chances of contamination from accidents or spills and road salt.

Recommendation:

- ✓ Work with your local fire department to ensure that they include your IWPA in the Emergency Response Planning.
- ✓ Inform Mass Highway of the IWPA for reduced salt spreading.

4. **Lawncare** – Fertilizer is used on the well-kept lawn in the Zone I and IWPA. No fertilizer or pesticide use is allowed in Zone I. Fertilizers and pesticides, if improperly applied or stored, can be potential sources of contamination to the water supply.

Recommendation:

- ✓ Do not use fertilizers or pesticides in the Zone I.

5. **Aquatic wildlife** - A pond is located within the Zone I and IWPA. Duck and other wildlife waste in and around the pond is a potential source of contamination to the water supply.

Recommendation:

- ✓ Discourage wildlife by prohibiting the feeding of ducks and wildlife.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Bridgecrest Condominium should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers and certified operator.
- ✓ Post drinking water protection area signs at key visibility locations.

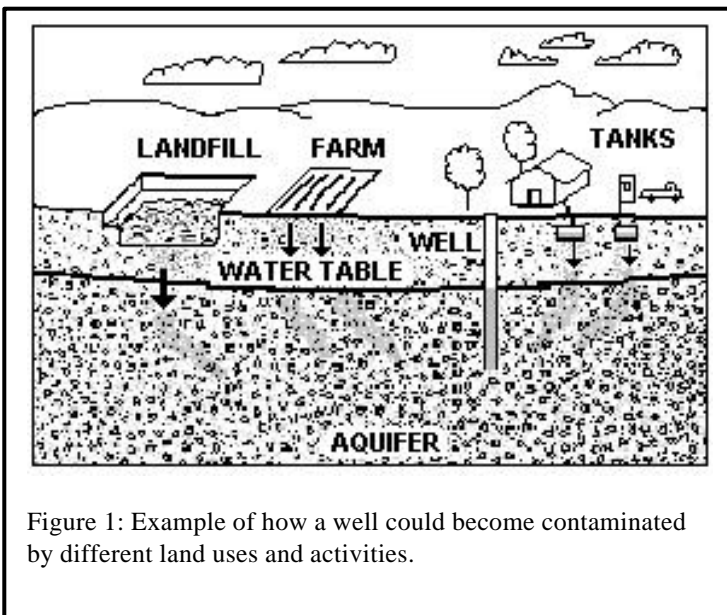


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at (508) 792-7650 x 5030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.

Planning:

- ✓ Work with local officials in Tyngsboro to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet from last year (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

6. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form

Source Water Assessment Program (SWAP) Report For MIT MILLSTONE



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
July 3, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	MIT MILLSTONE
<i>PWS Address</i>	OFF ROUTE 40
<i>City/Town</i>	TYNGSBORO
<i>PWS ID Number</i>	2301034
<i>Local Contact</i>	SAVAS DANOS
<i>Phone Number</i>	(978) 486-3104

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #2	2301034-O2G	288	800	Moderate

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

Maintaining Your Good Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attached Map of the Protection Areas

1. Description of the Water System

The well for the research laboratory is located in Tyngsboro, but the parcel of land the facility is on falls within the towns of Westford, Tyngsboro and Groton. The MIT Millstone well has a Zone I of 288 feet and an Interim Wellhead Protection Area (IWPA) of 800 feet. The well is located north of the Millstone facility, across the street from the dish? directional? antennae, on a gentle sloping hill. The 6 (six) inch bedrock well is 550 feet deep. The primary subsurface material in the vicinity of the facility is bedrock, overlain by a few feet of unconsolidated material. Occasional outcrops of bedrock, commonly referred to as "ledge", are seen at the surface. These bedrock exposures are representative of the typical granitic rocks. Please refer to the attached map of the Zone I and IWPA. The water is treated for iron and manganese with the addition of potassium permanganate followed by green sand filtration. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate activities in Zone I;**
2. **An aboveground storage tank (AST) containing heating oil;**
3. **Septic system; and**
4. **Research laboratory.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of only moderate and low threat land uses or activities in the IWPA.

1. **Zone I-** Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone I contains a portion of road, and the on-site radar antennae. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ If the facility plans to continue to use the road and radar antennae within the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.

2. **Aboveground storage tank (AST)** – The AST containing fuel oil is located within the IWPA. The AST is on an impervious surface. If managed improperly, Aboveground Storage Tanks can be a potential contaminant source due to leaks or spills of the chemicals they store.

Recommendation:

- ✓ Aboveground storage tanks in your IWPA should be located on an impermeable surface, and also contained in an area large enough to hold 110% of the complete liquid volume, should a spill occur.
- ✓ Comply with all provisions of the regulations regarding AST. Any modifications to the AST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with

Table 2: Table of Activities within the Water Supply Protection Areas

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Research Laboratory	Access road and parking area	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
	Aboveground storage tank	No	Yes	Moderate	Containing heating oil.
	Research Laboratory	No	Yes	Moderate	Facility is a research laboratory
	Septic System	No	Yes	Moderate	See septic systems brochure in the appendix

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

the local fire department for any additional local code requirements regarding ASTs.

3. **Septic system**– The septic system, which is pumped annually, lies within the IWPA. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

Recommendations:

- ✓ Staff should be instructed on the proper disposal of spent household chemicals. Include custodial staff, groundskeepers, and certified operator.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

4. **Research laboratory** - The facility belongs to MIT, and is used as a research facility. Improper handling or disposal of any chemicals used is a potential source of contamination.

Recommendation:

- ✓ Use BMPs for the proper handling, storage, and disposal of chemicals used at the research facility.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. MIT Millstone should review and adopt the following recommendations at the facility:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Do not use road salt within Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper use and disposal of hazardous materials.

Planning:

- ✓ Work with local officials in Tyngsboro, Westford, and Groton to include the facility's IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a

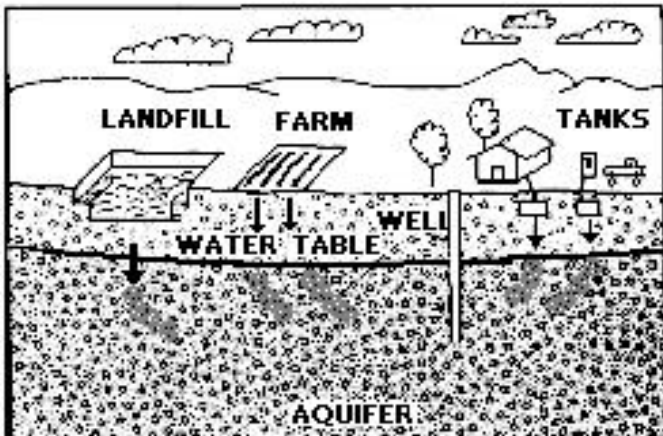


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:
www.state.ma.us/dep/brp/dws.

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

- bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Source Protection Sign Order Form

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix



Source Water Assessment Program (SWAP) Report For Curtis Hill Condominiums

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource
Protection,
Drinking Water Program

Date Prepared:
February 14, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Curtis Hill Condominiums
<i>PWS Address</i>	Village Lane
<i>City/Town</i>	Tyngsboro
<i>PWS ID Number</i>	2301035
<i>Local Contact</i>	Kevin Riney
<i>Phone Number</i>	(978) 258-7751

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2301035-01G	254	635	Moderate
Well #3	2301035-03G	254	635	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The wells for the facility are located northwest of the on-site building. Each well has a Zone I of 254 feet and an Interim Wellhead Protection Area (IWPA) of 635 feet. Well #2 is a rock well, and well #3 is a gravel packed well. Located in the same area is a well and pump house for a neighboring condominium - River Crossing Condominiums. The water supplies for Curtis Hill and River Crossing Condominiums are interconnected so that they can supply water for each other during periods of water shortage. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I's and IWPA's.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

The wells serving the facility has no treatment at this time. For current information on monitoring results and treatment and, for a copy of the most recent Consumer Confidence Report please contact the Public Water System contact person listed above in Table 1.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in the Zone Is,**
2. **An Aboveground Storage Tank (AST) with Heating Oil,**
3. **Septic Systems,**
4. **Aquatic wildlife and**
5. **Stormwater Catchbasin**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of at least one moderate threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone Is** – Currently, the wells do not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone Is contain parking areas and private homes with the access roads leading to them. The public water supplier does not own and/or control all land encompassed by the Zone Is. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements. The Public Water supplier should seek ownership and or control of development of land within the Zone I not currently owned.
 - ✓ Do not use fertilizers, pesticides or road salt within the Zone I.
2. **Aboveground Storage Tank (AST) containing fuel oil** – The private residences have ASTs. The houses are new, so the ASTs are new and meet fire safety standards. If managed improperly, Aboveground Storage Tanks can be a potential contaminant source due to leaks or spills of the fuel oil they store.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Parking lot, driveways & roads	Wells #1 & #3	Wells #1 & #3	Moderate	Limit road salt usage and provide drainage away from wells
Septic Systems are they associated with condo or private homes	No	Well #3	Moderate	See septic systems brochure in the appendix
Fuel Storage Above Ground (AST)	No	Wells #1 & #3	Moderate	Tanks are on paved surface in the basement
Stormwater catch basin	No	Wells #1 & #3	Low	Catch basins should be cleaned regularly

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

3. Septic systems – Septic systems are located within the IWPA of both wells. If improperly used and/or maintained, septic systems are a potential source of nitrate contamination and improperly disposed household hazardous waste in groundwater.

Recommendation:

- ✓ Residents and maintenance staff should be instructed on proper disposal of spent household chemicals.

4. Aquatic Wildlife – A pond is located within the Zone I and IWPA of the wellfield. The wildlife inhabitants of the pond are a potential source of contamination to the water supply.

5. Storm Water Catch Basin – Catch basins transport storm water from the roadway and adjacent properties to the ground. As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

Recommendation:

- ✓ Work with the Town of Tyngsboro to have the catch basins inspected, maintained, and cleaned on a regular schedule. Additionally, street and parking lot sweeping reduces the amount of potential contaminants in storm runoff.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Curtis Hill Condominiums should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.

- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Prohibit public access to the well by gating roads, and posting signs.
- ✓ Redirect road and parking lot drainage in the Zone I away from well.
- ✓ Do not use fertilizers, pesticides or road salt within the Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Work with your community to ensure that storm water runoff is directed away from the well and is treated according to DEP guidance.

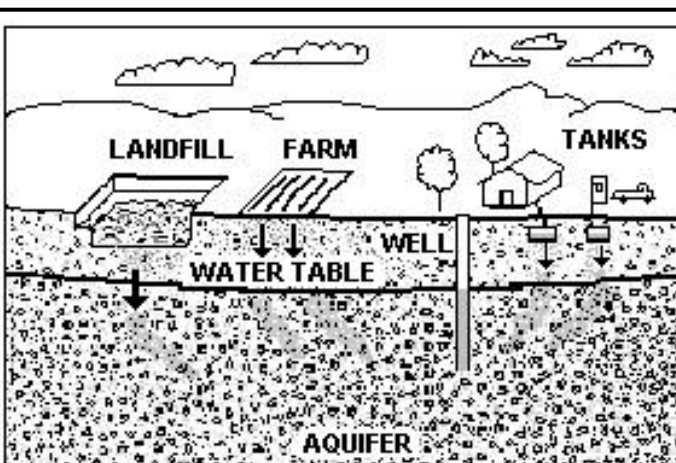


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at (508) 792-7650 x 5030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix
5. Source Protection Fact Sheets

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at <http://www.dep.state.ma.us/dep/bwp/dhm/dhmpubs.htm>
- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. Instead, in areas using hazardous materials, discharge drains to a tight tank or sanitary sewer.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer and pesticides.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding care of septic systems.

Planning:

- ✓ Work with local officials in Tyngsboro to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet –'01 (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Fertilizer Use Factsheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form

Source Water Assessment Program (SWAP) Report

For T.J. MAXX PLAZA



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
July 6, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	T.J. MAXX PLAZA
<i>PWS Address</i>	MIDDLESEX ROAD
<i>City/Town</i>	TYNGSBORO
<i>PWS ID Number</i>	2301037
<i>Local Contact</i>	CHRIS BIBBY
<i>Phone Number</i>	(603) 886-4985

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #2	2301037-02G	225	551	Moderate
Well #3	2301037-03G	275	728	Moderate

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

Maintaining Your Good Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential source of contaminant including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attached Map of the Protection Areas

1. Description of the Water System

T.J. Maxx Plaza gets its water supply from two bedrock wells (Wells #2 and #3).. Well #2 has a Zone I of 225 feet and an IWPA of 551 feet. Well #3 has a Zone I of 275 feet and an IWPA of 728 feet. Well #2 is 335 feet deep, and Well #3 is 340 feet deep. During drilling, unconsolidated material, consisting of medium to coarse sand and gravel was encountered. Please refer to the attached map of the Zone I and IWPA.

The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration.

The wells serving the facility have no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate activities in Zone Is;**
2. **Septic system; and**
3. **Wastewater treatment plant.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of only moderate threat land uses or activity in the IWPA.

1. **Zone Is** - Currently, the wells do not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone Is contain the cinema buildings, roads, and parking areas. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Keep non-water supply activities out of the Zone Is.
- ✓ Remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.
- ✓ If the facility intends to continue utilizing the structures, roads, and parking areas in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.

2. **Septic system** - The septic system is located within the IWPA. If improperly used and maintained, septic systems are a potential source of contamination in groundwater and the water supply.

Recommendations:

- ✓ Maintenance staff should be instructed on proper disposal of spent household chemicals.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

3. **Wastewater treatment plant** - The facility does have a working wastewater treatment plant on-site. Although there are no records of problems at the site,

Table 2: Table of Activities within the Water Supply Protection Areas

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Commercial Property	Parking lot and road	Both wells	Both wells	Moderate	Limit road salt usage and provide drainage away from wells
	Septic System	No	Both wells	Moderate	See septic systems brochure in the appendix
	Transportation corridor	No	Both wells	Moderate	Route 3
	Wastewater treatment plant	No	Both wells	Moderate	Sewer pipes are encased

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

wastewater overflows are a potential source of microbial and non-microbial contamination if improperly managed.

Recommendation:

- ✓ Ensure that any overflows discharge outside of the protection areas.
- ✓ Operate and maintain the wastewater treatment facility according to DEP requirements.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. T.J. Maxx Plaza should review and adopt the following recommendations at the facility:

Zone I:

- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Do not use road salt within Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices.
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.

Planning:

- ✓ Work with local officials in Tyngsboro to include T.J. MAXX Plaza IWPA's in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.

- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Protection Grant Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet from last year (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

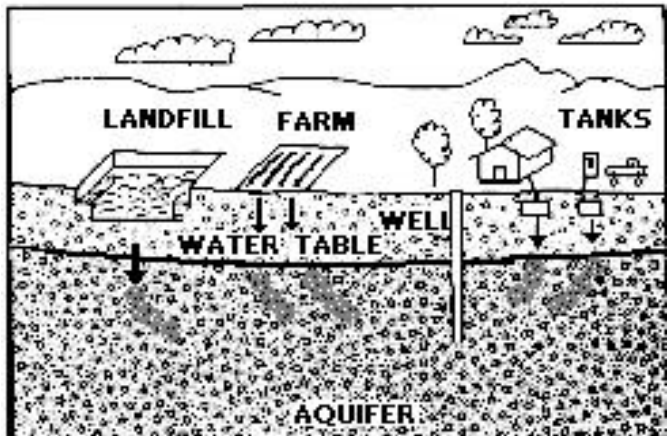


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:
www.state.ma.us/dep/brp/dws.

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Source Water Assessment Program (SWAP) Report For Tyngsboro Business Park-Lot 1



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
April 17, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	TYNGSBORO BUSINESS PARK- LOT 1
<i>PWS Address</i>	89 KENDALL ROAD
<i>City/Town</i>	TYNGSBORO
<i>PWS ID Number</i>	2301038
<i>Local Contact</i>	JOE GREENOUGH
<i>Phone Number</i>	(781) 639-2975

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well # 1A	2301038-01G	180	476	Moderate

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

Maintaining Your Good Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

INTRODUCTION

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attached Map of the Protection Areas

1. Description of the Water System

The well for Tyngsboro Business Park- Lot 1 is located northwest of the on-site building. The well has a Zone I of 180 feet and an Interim Wellhead Protection Area (IWPA) of 476 feet. The geologic materials encountered during drilling activities are dense silt loam, glacial till, and granitic bedrock. The well is 545 feet deep. The public water system for the facility also includes well 2301038-1B, an auxiliary well that is not covered by this report. Please refer to the attached map of the Zone I and IWPA. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA. The well serving the facility has no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate activities in Zone I;**
2. **Transmission line right of way; and**
3. **Utility transformer.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of at least one moderate threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone I**- Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying the system.

Recommendations:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.

2. **Transmission line right of way** - The transmission line runs through the IWPA. Normal maintenance of transmission line right of ways can introduce contaminants to a water supply through herbicide application for vegetation control.

Recommendation:

- ✓ Contact your local Board of Health to ensure that the IWPA is included in right of way pesticide management planning. Vegetation removal in the IWPA should be done with mechanical means rather than herbicides.

3. **Utility transformer** – A utility transformer mounted on a concrete pad located behind the building. Older utility transformers may contain PCBs that could leak out and become potential sources of contamination if not properly contained.

Recommendations:

- ✓ For utility transformers that may contain PCBs, contact the utility company to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement.

Table 2: Table of Activities within the Water Supply Protection Areas

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Commercial Building	Parking lot	No	Yes	Moderate	Continue to limit road salt usage and provide drainage away from wells
	Transmission Line Right of Way	Yes	Yes	Low	Limit use of herbicide
	Utility substation transformer	No	Yes	Low	On concrete pad

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

- ✓ Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Tyngsboro Business Park- lot 1 should review and adopt the following recommendations at the facility:

Zone I:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.
- ✓ Do not use road salt within Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices.
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.

Planning:

- ✓ Work with local officials in Tyngsboro to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands.

Keep the phone number of a bottled water company readily available.

- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet from last year (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

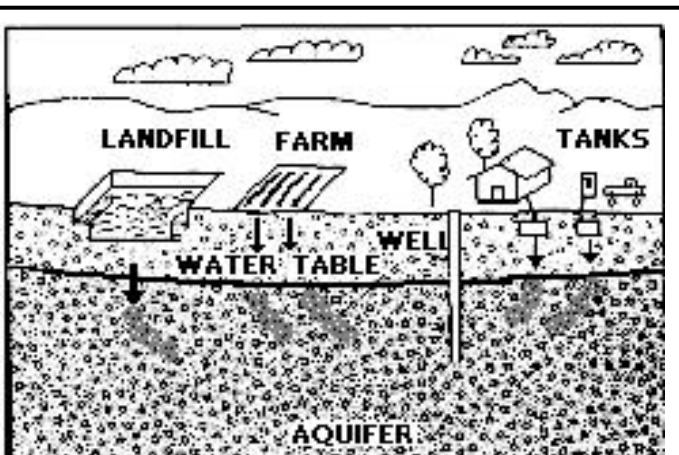


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:
www.state.ma.us/dep/brp/dws.

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form



Source Water Assessment Program (SWAP) Report For Pondview II

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource
Protection,
Drinking Water Program

Date Prepared:
July 3, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Pondview II
<i>PWS Address</i>	Middlesex Road
<i>City/Town</i>	Tyngsborough
<i>PWS ID Number</i>	2301043
<i>Local Contact</i>	Frank Foye
<i>Phone Number</i>	(781) 762-3250

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2301043-01G	126	433	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The well for the facility is located in a pit accessed by a manhole behind the northernmost portion of the on-site building. . Well #1 has a Zone I of 126 feet and an Interim Wellhead Protection Area (IWPA) of 433 feet. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA. The well serving the facility has no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone I;**
2. **Septic system;**
3. **Aquatic wildlife;**
4. **Stormwater drain/catch basin: and**
5. **Transportation Corridor.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of at least one moderate threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone I** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone I. The facility's Zone I contains buildings, roads and parking areas. The public water supplier does not own and/or control all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- V Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- V Do not use or store pesticides, fertilizers or road salt within the Zone I.
- V If the facility intends to continue utilizing the structures, roads, and parking in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.

2. **Septic system** - The septic system for the facility is located within the IWPA of the well. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

Recommendations:

- V Staff should be instructed on the proper disposal of spent household chemicals. Include custodial staff, groundskeepers, and certified operator.
- V Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Parking lot, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Septic System	No	Yes	Moderate	See septic system brochure
Aquatic wildlife	Yes	Yes	Low	Wildlife in and around pond
Stormwater drains/catch basin	No	Yes	Low	Divert discharge away from well
Transportation corridor	No	Yes	Moderate	Route 3A
Structures	Yes	Yes	-	Non-water supply structures in Zone I

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

3. **Aquatic wildlife** - A pond is located within the Zone I and IWPA of the well. Duck and other wildlife waste in and around the pond is a potential source of contamination to the water supply.

Recommendation:

✓ Discourage wildlife by prohibiting the feeding of ducks or other wildlife.

4. **Storm Water Catch Basin** – Catch basins transport storm water from the roadway and adjacent properties to the ground. As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential sources of contamination include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

Recommendation:

✓ Work with the Town to have the catch basins inspected, maintained, and cleaned on a regular schedule. Additionally, street and parking lot sweeping reduces the amount of potential contaminants in storm runoff.

5. **Transportation corridor** - Route 3A is located within the IWPA. Route 3A is one of the main roads through the town, which increases the chances of contamination from accidents, spills, and road salt.

Recommendation:

✓ Work with your local fire department to ensure that they include your IWPA in the Emergency Response Planning.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Pondview II should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.
- ✓ Do not use road salt within the Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator.
- ✓ Post drinking water protection area signs at key visibility locations.

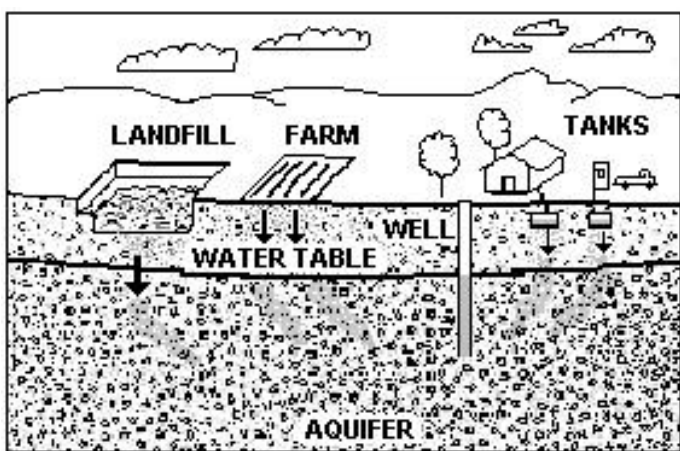


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, the town library and the local media.

- ✓ Work with your community to ensure that stormwater runoff is directed away from the well and is treated according to DEP guidance.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.

Planning:

- ✓ Work with local officials in Tyngsborough to include the Pondview II IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Source Protection Sign Order Form



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Wakefield Water Department

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Wakefield Water Department
<i>PWS Address</i>	108 Broadway
<i>City/Town</i>	Wakefield, Massachusetts
<i>PWS ID Number</i>	3305000
<i>Local Contact</i>	Steven Fitzpatrick - Water/Sewer Supervisor
<i>Phone Number</i>	781-246-6318

Introduction

We are all concerned about the quality of the water we drink. Drinking water may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

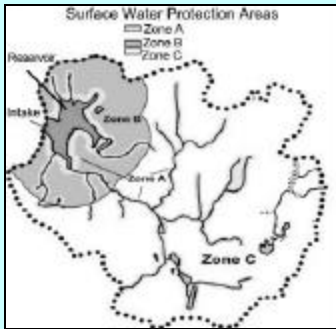
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Glossary Protection Zones

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

<i>Source Name</i>	<i>Source ID</i>	<i>Susceptibility</i>
Crystal Lake	3305000-01S	High

The Wakefield Water Department purchases approximately 85% of its water supply from the Massachusetts Water Resources Authority (MWRA). About 15% of Wakefield's water is drawn from Crystal Lake Reservoir during times of peak demand. The reservoir water is replenished by its 563.5 acre watershed located in the towns of Wakefield and Stoneham (refer to Map in Attachment A). The reservoir, like all surface water sources, is considered to be highly vulnerable due to the absence of physical barriers that could impede contaminant progress to the source.

Attached please find a copy of the SWAP report prepared for the MWRA sources that supply approximately 85% of the drinking water to the Town of Wakefield. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

The water from Crystal Lake is filtered and disinfected using sodium hypochlorite at the 108 Broadway St. treatment facility before being pumped into the water distribution system. Please contact the Wakefield Water Department for a copy of the most recent annual Consumer Confidence Report for complete water quality and treatment information.

Section 2: Land Uses in the Protection Areas

The watershed for Crystal Lake is a mixture of residential, commercial, and light industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Zone A Land Uses
2. Residential Land Uses
3. Wastewater Pump Station Overflows
4. Aquatic Wildlife
5. Transportation Corridors
6. Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Zone A Land Uses - The Zone A is the land area within 400 feet of a reservoir and 200 feet of its tributaries. The land uses and activities within the Zone A include: urban storm runoff from roads, a railroad right of way, wastewater pump station overflows, a nursery, parking, and wildlife. Public

water systems are responsible for enforcing the prohibition of certain new or expanded land uses within the Zone A, as detailed in 310 CMR 22.20(b).

Zone A Recommendations:

- ✓ Actively monitor new or expanded land uses within the Zone A according to your watershed protocol submitted to DEP.
- ✓ Control stormwater within the Zone A.
- ✓ Control aquatic wildlife within the Zone A.
- ✓ Work with local emergency response teams to practice containment of spills within the Zone A.
- ✓ Conduct regular inspections of the Zone A for illegal dumping and spills.
- ✓ Install water supply protection area signs around the Zone A.
- ✓ Conduct regular inspections of railroad right of way.

2. Residential Land Uses – Approximately 54% of the watershed consists of residential areas. The whole area is served by public sanitary sewers. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.

- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Wastewater Pump Station Overflows – A wastewater pump station in Stoneham is within the Crystal Lake watershed Zone A. In the past, occasional line blockages caused overflows of wastewater to drain to Crystal Lake. These wastewater overflows are a potential source of microbial and non-microbial contamination. Additionally,

there is a smaller wastewater pump station in Wakefield. There are no records of similar problems at this station.

Wastewater Recommendations:

- ✓ Work with the Town of Stoneham DPW to prevent or contain future overflows. Preventing future overflows may involve an engineering solution or other wastewater facility BMPs.
- ✓ Create a joint emergency response plan to contain any future overflows from this station and the one in Wakefield.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

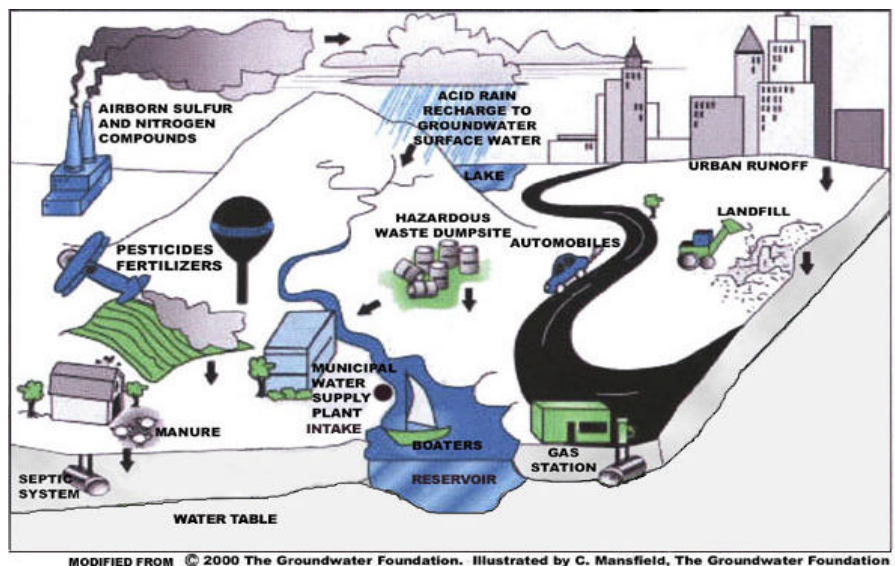


Figure 1: Sample watershed with examples of potential sources of contamination

4. Aquatic Wildlife—Birds, particularly gulls, are attracted to large open bodies of water. Birds may increase coliform levels through the release of fecal matter into the water and may carry other bacteria and viruses. Beaver and muskrat may introduce the pathogens *Giardia* and *Cryptosporidium* into water through fecal matter. Because of their constant contact with the water, these aquatic mammals represent a potential threat to drinking water reservoirs. Appendix A contains a DEP fact sheet titled *What You Need To Know About Microbial Contamination*.

Aquatic Wildlife Recommendations:

- ✓ Monitor wildlife populations in and around reservoirs.
- ✓ Where necessary, discourage and control aquatic wildlife. See <http://mass.gov/dep/brp/dws/protect.htm> for guidance and permits.

5. Transportation Corridors - A railroad corridor runs along the eastern edge of the Zone A. Local roads are common throughout the protection areas. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include substances from automotive leaks, maintenance, washing, or accidents.

Railroad tracks run directly through the Zone A. Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals.

Transportation Corridor Recommendations:

- ✓ Regularly inspect watershed for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

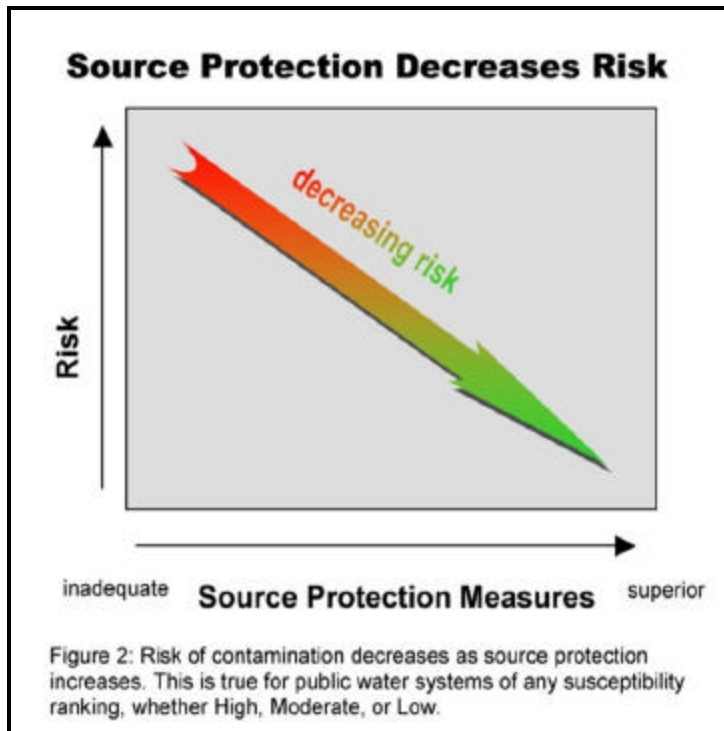
6. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a reservoir. Currently, the Town does not have water supply protection controls that meet DEP's Surface Water Protection

(Continued on page 6)



What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.



Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

Activities	Quantity	Threat*	Potential Source of Contamination
Agricultural			
Nurseries	1	M	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling or over-application.
Commercial			
Auto Repair/ Auto Body Shops	2	M	Automotive fluids and solvents: spills, leaks, or improper handling
Gas Stations	2	M	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Residential			
Fuel Oil Storage (at residences)	Several	M	Fuel oil: spills, leaks, or improper handling
Lawn Care / Gardening	Several	M	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Several	M	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous			
Aquatic Wildlife	Few	H	Microbial contaminants
Railroad right-of-way	1	H	Herbicides: over-application or improper handling; fuel storage, transported chemicals, and maintenance chemicals: leaks or spills
Schools	2	M	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Transportation Corridors	Many	H	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling
Underground Storage Tanks	5	H	Spills, leaks, or improper handling of stored materials
Wastewater Treatment (Pump Stations)	2	H	Treatment chemicals or equipment maintenance materials: improper handling or storage; wastewater: improper management

Table 2 Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

regulations 310 CMR 22.20 (b) and (c). A Surface Water Supply Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply reservoirs.

Protection Planning Recommendations:

- ✓ Implement a Surface Water Supply Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Surface Water Supply Protection Plan”.
- ✓ If there are no local controls or they do not meet the current regulations, adopt controls that meet 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ Because there is no protection for the 34% of the watershed in Stoneham, develop a cooperative protection agreement with the Town of Stoneham.

Other land uses and activities within the Protection areas that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system watershed contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. Wakefield is commended for having received a DEP grant to develop a Surface Water Supply

Protection Plan that includes protection recommendations such as a watershed protection bylaw. Once the plan has been approved by the DEP, Wakefield should implement the identified protection strategies, access restrictions, and watershed protection bylaw/overlay district.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone A regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with the Town of Stoneham DPW to prevent or contain future wastewater pump station overflows.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your watershed and to cooperate on responding to spills or accidents.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department’s Source Protection Grant Program provides funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response (RFR) for the grant program.

Top 5 Reasons to Develop a Local Surface Water Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

(Continued on page 8)

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Zone A owned or controlled by Public Water Supplier (PWS)	NO	Adopt land use restrictions for watershed lands not owned by the PWS, especially in the Zone A.
Regularly inspect Zone A and other watershed protection lands	YES	Inspection in Stoneham should be part of a cooperative agreement.
Zone A Storm drain locations identified (contributing to reservoir)	YES	Management options include signs, control structures, and vegetative barriers
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Watershed Protection Bylaw	NO	Adopt local regulations to protect the watershed. Contact DEP's Kathy Romero at (617) 292-5727 for sample bylaws.
Hazardous Materials Controls	NO	Develop commercial registration and inspection program for tracking chemical storage and use. For guidance see Hazardous Materials Management: A Community's Guide at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Controls on public access relating to the reservoir and watershed	NO	Work with Stoneham to develop restrictions for watershed lands within Stoneham.
Protection of watershed extending into neighboring communities	NO	Improving cooperation with Stoneham is a priority.
Planning		
DEP approved protection plan	NO	Develop watershed protection plan. Follow "Developing a Local Surface Water Supply Protection Plan" to develop a watershed protection plan for DEP approval.
Formal "Emergency Response Plan" to deal with spills or other emergencies	YES	Augment plan by developing a joint emergency response plan with MBTA, DPW, and local emergency officials. Coordinate drills.
Water supply protection committee	NO	Establish committee; include representatives from citizens' groups, Stoneham, and the business community.
Board of Health inspections of commercial and industrial activities	YES	Support Fire Department efforts to expand UST removal and replacement program.
Provide protection education	YES	Aim additional efforts at storm drains and commercial uses within the watershed. Coordinate with Stoneham.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watershed. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier and town boards.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN WAKEFIELD'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
340171	FITZ MACHINE	4 RAILROAD AVENUE	WAKEFIELD	HANDLR	VERY SMALL QUANTITY GENERATOR WASTE OIL/PCBS
134399	RAWSON AUTO BODY INC	71 BROADWAY	WAKEFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
320167	RILOS AUTO SERVICE	343 MAIN ST	WAKEFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
320167	RILOS AUTO SERVICE	343 MAIN ST	WAKEFIELD	HANDEL R	SMALL QUANTITY GENERATOR WASTE OIL/PCBS
357381	RILOS AUTO SERVICE & VIP STATION	343 ALBION ST	WAKEFIELD	FUEL DISPENSER	FUEL DISPENSER STAGEII
30648	SAWIN MOTORS INC	75 BROADWAY	WAKEFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
30964	SERVICE PUMPING & DRAIN CO INC	42 REAL BROADWAY	WAKEFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
33511	TECCES AUTO BODY	1 RAILROAD AVE	WAKEFIELD	HANDLER	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
33511	TECCES AUTO BODY	1 RAILROAD AVE	WAKEFIELD	HANDLER	RECYCLER - BURNER/BLENDER
280749	WAKEFIELD USED CAR	40 A BROADWAY	WAKEFIELD	HANDLER	NON-NOTIFIER HW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED

UNDERGROUND STORAGE TANKS WITHIN WAKEFIELD'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
PUMP N PANTRY MOBIL	950 MAIN ST	WAKEFIELD	Gas Station	10000	Gasoline
PUMP N PANTRY MOBIL	950 MAIN ST	WAKEFIELD	Gas Station	8000	Gasoline
RILO'S VIP	343 ALBION ST	WAKEFIELD	Gas Station	2000	Gasoline
RILO'S VIP	343 ALBION ST	WAKEFIELD	Gas Station	2000	Gasoline
RILO'S VIP	343 ALBION ST	WAKEFIELD	Gas Station	3000	Gasoline

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Walpole Water Department

What is SWAP?

The Source Water Assessment Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Walpole Water Department
<i>PWS Address</i>	Town Hall/135 School Street
<i>City/Town</i>	Walpole, Massachusetts 02081
<i>PWS ID Number</i>	3307000
<i>Local Contact</i>	Rick Mattson - Superintendent
<i>Phone Number</i>	(508) 660-7308

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

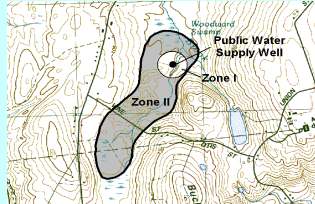
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This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

Zone II #: 107

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Mine Brook Well #1	3307000-01G
Mine Brook Well #2	3307000-02G
Mine Brook Well #3	3307000-03G
Mine Brook Well #5	3307000-11G

Zone II #: 478

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Washington Well #3	3307000-05G
Washington Well #2	3307000-06G
Washington Well #5	3307000-08G
Washington Well #6	3307000-09G
Washington Well #4	3307000-10G
Neponset Well #1	3307000-12G
Neponset Well #2	3307000-13G

The wells for the Walpole Water Department are located within two separate water supply protection areas, with portions extending into the towns of Foxborough, Medfield, and Sharon. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II. The Town is in the process of reactivating Mine Brook Well #2, which has been inactive for several years. The Town is also in the process of replacing Washington Well #4 by two new wells, #4-A and #4-B.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone IIs for Walpole are a mixture primarily of residential and forested land uses, with a small portion consisting of industrial and agricultural (refer to attached map for details).

Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Hazardous Materials Storage and Use
3. Residential Land Uses
4. Oil or Hazardous Material Contamination Sites
5. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone Is – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The following non-water supply activities occur in the Zone Is of Walpole's wells:

Mine Brook Well #1 and Well #5: There are high school athletic fields within the Zone I of these wells.

Mine Brook Well #2 and Well #3: There is an active rail line within the Zone I of these wells.

Washington Well #2: There is a local road and a utility transmission line in the Zone I of this well.

Washington Well #5: There is a home that is connected to municipal sewer, a local road, and a utility transmission line in the Zone I of this well.

**When you fertilize the lawn,
Remember
you're not *just* fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108

Zone I Recommendations:

- ✓ Coordinate efforts with landowners to identify the location of septic systems, and if needed, determine the feasibility of relocating septic systems outside of the Zone I.
- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.

- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.

- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

- ✓ Keep any new non-water supply activities out of the Zone I.

- ✓ Agreement Options - Attempt to obtain a *Memorandum of Understanding*.

Memorandum of Understanding (MOU) is an agreement between the landowner and public water supplier in which the landowner agrees not to engage in specific threatening activities. The MOU should be specific to the land use or activity. For instance, if the land is residential with a septic system the owner could agree not to place chemicals, petroleum products, or

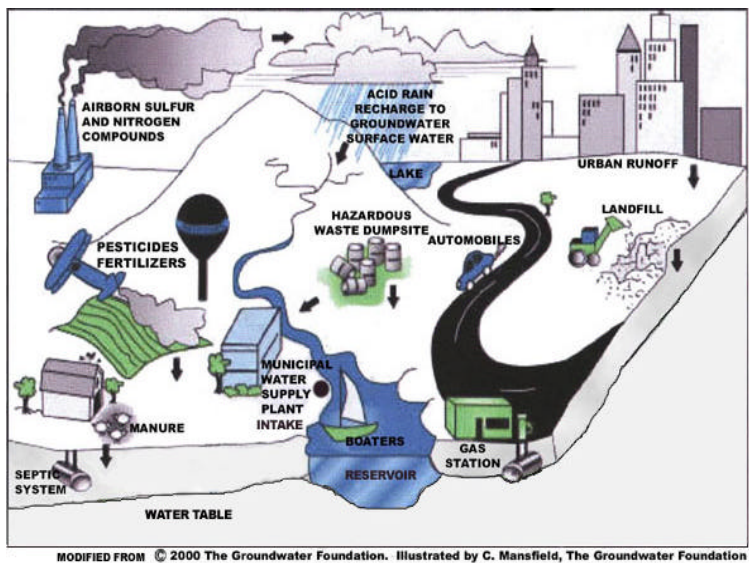


Figure 1: Sample watershed with examples of potential sources of contami-

other hazardous or toxic substances, including septic system cleaners into the septic system, and that the system will be pumped at a specific frequency. The application of lawn care chemicals could also be restricted. Understanding how activity threatens drinking water quality is an important component of developing an effective MOU.

- ✓ Work with the local Conservation Commission to make sure the wetland/stream resource areas are properly delineated in the field prior to the application of pesticides and that the supplier reviews the Yearly Operating Plan (YOP) from the railroad and utility companies. These plans are approved directly by the Department of Food and Agriculture, with copies being sent to the local Conservation Commission.

2. Hazardous Materials Storage and Use – Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks

(USTs) and Aboveground Storage Tanks (ASTs). If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP’s for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

3. Residential Land Uses – Approximately 21% of the combined Zone IIs consist of residential areas, some of which are still served by private septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II #/ Source ID#	Potential Source of Contamination
Agricultural				
Pesticide Storage or Use	1	H	107	Leaks, spills, improper handling, or over-application of pesticides
Commercial				
Gas Stations	3	H	478	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Railroad Tracks and Yards	2	H	107, 478	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Sand and Gravel Mining/Washing	1	M	107	Spills or leaks from heavy equipment, fuel storage, clandestine dumping
Industrial				
Electronics/Electrical Manufacturers	1	H	478	Spills, leaks, or improper handling or storage of chemicals and process wastes
Industry/Industrial Parks	11	H	478	Spills, leaks, or improper handling or storage of industrial chemicals and metals
Residential				
Fuel Oil Storage (at residences)	numerous	M	107, 478	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	numerous	M	107, 478	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	numerous	M	107, 478	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous				
Large Quantity Hazardous Waste Generators	2	H	478	Spills, leaks, or improper handling or storage of hazardous materials and waste
NPDES Locations	1	L	107	Improper disposal of hazardous material and wastes

Activities	Quantity	Threat*	Zone II #/ Source ID#	Potential Source of Contamination
Miscellaneous				
Oil or Hazardous Material Sites	4	--	478	Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road and Maintenance Depots	1	M	478	Spills, leaks, or improper handling or storage of deicing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	2	M	107, 478	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	5	M	478	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Numerous	L	107, 478	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way Type: <u>electric & gas</u>	3	L	107, 478	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	2	M	478	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	10	H	478	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generators	11	L	107, 478	Spills, leaks, or improper handling or storage of hazardous materials and waste
<p>Notes:</p> <ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>? THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

(Continued from page 4)

- ✓ Promote BMPs for stormwater management and pollution controls.
- ✓ Review railroad right-of-way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

4. Presence of Oil or Hazardous Material Contamination Sites – The Zone II for the Washington and Neponset Wells contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0004812, 3-0018926, 4-0000261, and 4-0001164. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

5. Protection Planning – Walpole has water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). These controls were adopted in June 2001. Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). Occasionally update local controls to meet changes in current regulations. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

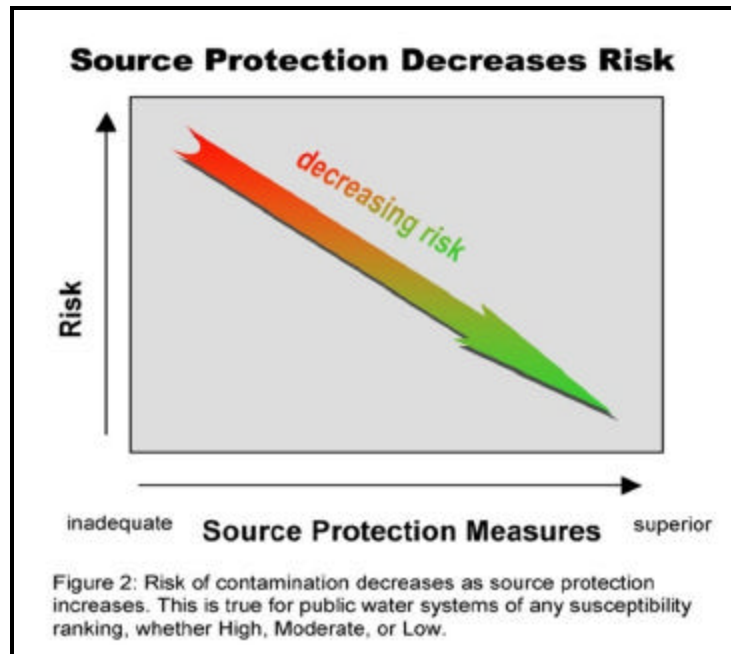


Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES (Washington Well #3 and #4; Neponset Well # 1 and #2)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Mine Brook Well #1, #2, #3, and #5; Washington Well #2, #5, and #6)	To the extent possible, remove non-water supply activities from each Zone I to comply with DEP's Zone I requirements. Investigate options for gaining ownership or control of the Zone I for groundwater sources.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	NO	Post all wells with "Public Drinking Water Supply" or "No Trespassing" signs .Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas. Pay special attention to fenced areas, lighting, and signs of forced entry into well houses and pump stations.
Are water supply -related activities the only activities within the Zone 1?	YES (Washington Well #3 and #4; Neponset Well # 1 and #2)	Continue monitoring for non-water supply activities in Zone Is.
	NO (Mine Brook Well #1, #2, #3, and #5; Washington Well #2, #5, and #6)	Monitor non-water supply activities in Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town's bylaw meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	SOME	Sharon has adopted land use controls that include Walpole's source protection areas. Work with Foxborough and Medfield to include Walpole's Zone IIs in their wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish a committee with representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Continue with Walpole's inspections, and enforcement of local bylaw. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. Walpole is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Adopting a local bylaw for the control and management of hazardous materials. This bylaw is implemented through the Board of Health, with additional inspection support from the Fire Department. The BOH requires an annual report of hazardous material storage.
- Adopting a local bylaw that meets DEP's prohibited land uses within a Zone II.
- Department of Public Works involvement in a self-audit program for storage and handling of hazardous material.
- Working with the Town of Sharon on construction projects that are proposed in the section of the Zone II that extends into Sharon.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN WALPOLE WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
28469	COOKS TOWING	2222 PROVINCENCE HIGHWAY	WALPOLE	HANDLER	VERY SMALL QUANTITY GENERATOR
136183	CUMBERLAND FARMS #2008	1185 WASHINGTON STREET	WALPOLE	FUEL DISPENSER	FUEL DISPENSER
134306	LORUSSO S M & SONS INC	440 WEST STREET	WALPOLE	HANDLER	VERY SMALL QUANTITY GENERATOR
332167	MICREX CORPORATION	17 INDUSTRIAL ROAD	WALPOLE	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
31796	MINUTEMAN TRUCKS INC	2181 PROVIDENCE HIGHWAY	WALPOLE	DISCHARGE	INDUSTRIAL SEWER WASTE WATER
31796	MINUTEMAN TRUCKS INC	2181 PROVIDENCE HIGHWAY	WALPOLE	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
31796	MINUTEMAN TRUCKS INC	2181 PROVIDENCE HIGHWAY	WALPOLE	HANDLER	SMALL QUANTITY GENERATOR
367870	MOBIL 12804	980 PROVIDENCE HIGHWAY	WALPOLE	FUEL DISPENSER	FUEL DISPENSER
193837	PHARMACIA DELTEC INC	1600 PROVIDENCE HIGHWAY RTE 1	WALPOLE	HANDLER	VERY SMALL QUANTITY GENERATOR
335505	PROCESS ANALYZERS LLC	25 WALPOLE PARK SOUTH DRIVE	WALPOLE	HANDLER	VERY SMALL QUANTITY GENERATOR
125213	ROSENFELD CONCRETE COMPANY	331 WEST STREET	WALPOLE	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
303462	SCHINDLER ELEVATOR CORPORATION	4 WALPOLE PARK - SOUTH DRIVE	WALPOLE	HANDLER	SMALL QUANTITY GENERATOR
360865	SM LORUSSO & SONS INC	331 WEST STREET	WALPOLE	FUEL DISPENSER	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
327805	STADIUM MOBIL	2285 PROVIDENCE HIGHWAY	WALPOLE	FUEL DISPENSER	FUEL DISPENSER
367833	TOPCOAT DIVISION OF GAF MATERIALS CORP	24 INDUSTRIAL ROAD	WALPOLE	HANDLER	SMALL QUANTITY GENERATOR
367833	TOPCOAT DIVISION OF GAF MATERIALS CORP	24 INDUSTRIAL ROAD	WALPOLE	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
32462	TRM CORPORATION	24 WALPOLE PARK SOUTH UNIT 8	WALPOLE	HANDLER	VERY SMALL QUANTITY GENERATOR
27587	WEST SAND & GRAVEL	331 WEST STREET	WALPOLE	HANDLER	VERY SMALL QUANTITY GENERATOR
30886	WALPOLE TOWN OF D P W	1385 WASHINGTON STREET	WALPOLE	HANDLER	RECYCLER - BURNER/BLENDER
26766	NEW ENGLAND TAP CO	FOX HILL PARK	FOXBOROUGH	HANDLER	VERY SMALL QUANTITY GENERATOR
741	STADIUM ASSOC LTD PRTRNSHP	U.S. ROUTE 1	FOXBOROUGH	GROUND WATER DISCHARGE	GROUND WATER DISCHARGE WATER MINOR
34251	VERIZON NEW ENGLAND INC	23 PERRY DRIVE	FOXBOROUGH	HANDLER	VERY SMALL QUANTITY GENERATOR
34251	VERIZON NEW ENGLAND INC	23 PERRY DRIVE	FOXBOROUGH	APPROVED	INDUSTRIAL WASTE WATER HOLDING TANK
132202	BRODIE INC	1180 GENERAL EDWARDS HIGHWAY	SHARON	HANDLER	VERY SMALL QUANTITY GENERATOR
132202	BRODIE INC	1180 GENERAL EDWARDS HIGHWAY	SHARON	HANDLER	SMALL QUANTITY GENERATOR
177503	DYNISCO	4 COMMERCIAL STREET	SHARON	DISCHARGE	BELOW IWW REGULATED THRESHOLDS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
177503	DYNISCO, INC.	4 COMMERCIAL STREET	SHARON	TURA REPORTER	BELOW TUR REGULATED THRESHOLDS
193125	MINUTEMAN FORD TRUCK SALES	ROUTE 1	SHARON	HANDLER	SMALL QUANTITY GENERATOR
131187	SENIOR FLEXONICS INC METAL BELLOWS DIV	1075 PROVIDENCE HIGHWAY	SHARON	HANDLER	LARGE QUANTITY GENERATOR

UNDERGROUND STORAGE TANKS WITHIN WALPOLE WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
CUMBERLAND FARMS #12738	1185 WASHINGTON STREET	WALPOLE	GAS STATION	12000	GASOLINE
CUMBERLAND FARMS #12738	1185 WASHINGTON STREET	WALPOLE	GAS STATION	6000	GASOLINE
MOBIL	980 PROVIDENCE HIGHWAY	WALPOLE	GAS STATION	10000	GASOLINE
MOBIL	980 PROVIDENCE HIGHWAY	WALPOLE	GAS STATION	10000	GASOLINE
MOBIL	980 PROVIDENCE HIGHWAY	WALPOLE	GAS STATION	10000	GASOLINE
MOBIL	980 PROVIDENCE HIGHWAY	WALPOLE	GAS STATION	10000	GASOLINE
STADIUM MOBIL	2285 PROVIDENCE HIGHWAY	WALPOLE	GAS STATION	8000	GASOLINE
STADIUM MOBIL	2285 PROVIDENCE HIGHWAY	WALPOLE	GAS STATION	6000	GASOLINE
STADIUM MOBIL	2285 PROVIDENCE HIGHWAY	WALPOLE	GAS STATION	6000	GASOLINE
WALPOLE HIGH SCHOOL	275 COMMON STREET	WALPOLE	MUNICIPAL	10000	FUEL OIL

For More Information On Underground Storage Tanks, Visit The Massachusetts Department Of Fire Services Web Site: <http://www.state.ma.us/dfs/ust/usthome.htm>
Note: This Appendix Includes Only Those Facilities Within The Water Supply Protection Area(s) That Meet State Reporting Requirements And Report To The Appropriate Agencies. Additional Facilities Located Within The Water Supply Protection Area(s) Should Be Considered In Local Drinking Water Source Protection Planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Walpole Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0004812	1185 Washington Street	Walpole	Oil
3-0018926	1611 Washington Street	Walpole	Oil
4-0000261	1075 Providence Highway	Sharon	Oil
4-0001164	23 Perry Drive	Foxborough	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Wayland Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Wayland Water Department
<i>PWS Address</i>	41 Cochituate Road
<i>City/Town</i>	Wayland, Massachusetts 01778
<i>PWS ID Number</i>	3315000
<i>Local Contact</i>	Donald Hollender – Superintendent
<i>Phone Number</i>	(508) 358-3696

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

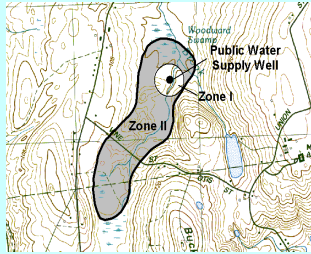
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 8

Susceptibility: High

Well Names	Source IDs
Happy Hollow GP Well #1	3315000-03G
Happy Hollow GP Well #2	3315000-04G
Meadowview GP Well #1	3315000-05G

Zone II #: 81

Susceptibility: High

Well Names	Source IDs
Chamberlain GP Well	3315000-08G

Zone II #: 221

Susceptibility: High

Well Names	Source IDs
Baldwin Pond Well #1	3315000-01G
Baldwin Pond GP Well #3	3315000-06G
Baldwin Pond Well #2	3315000-07G

Zone II #: 475

Susceptibility: High

Well Names	Source IDs
Campbell Road GP Well #1	3315000-02G

The wells for the Wayland Water Department are located within four separate water supply protection areas, with portions extending into the towns of Framingham, Lincoln, and Sudbury. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone IIs for Wayland are a mixture primarily of forest, wetlands, and residential land uses, with a small portion consisting of agriculture, commercial, and light industry (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Inappropriate activities in Zone I
2. Agricultural activities
3. Residential land uses
4. Golf courses
5. Oil or hazardous material contamination sites
6. Comprehensive wellhead protection planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Inappropriate Activities in Zone I – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes, recreation fields, and public roads. The following non-water supply activities occur in the Zone I of some of the systems wells:

Baldwin Pond Wells - This area acts as the system's headquarters and includes district office activities associated with water supply operations (e.g. maintenance of equipment), and septic systems for the water office and adjacent homes, and Old Sudbury Road (Route 27).

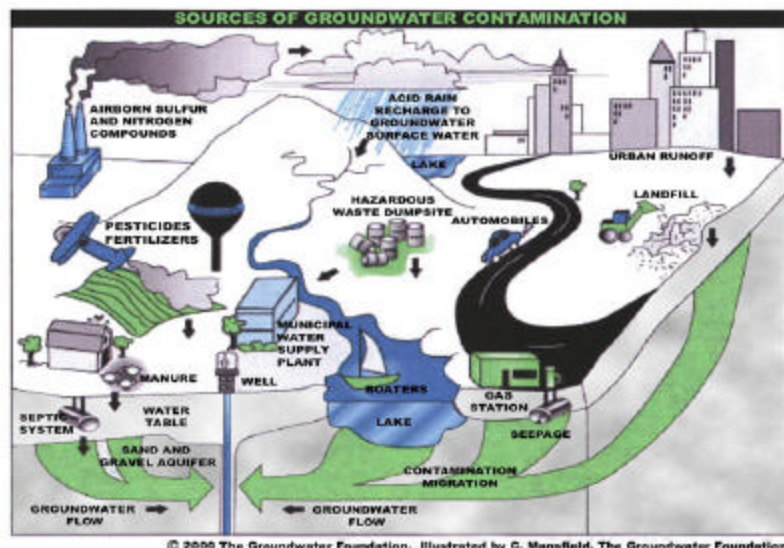
Happy Hollow Wells – Portions of the high school parking lot and overnight bus parking occur in the Zone I for both wells.

Meadowview Well – There are several homes and a portion of Meadowview Road in the Zone I of this well.

Chamberlain Well - There are farming activities occurring in the Zone I of the Chamberlain Well.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from each Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.



2. Agricultural Activities – Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If not contained or applied properly, animal waste from barnyards, manure pits and field application are potential sources of contamination to ground and surface water.

Agricultural Activities Recommendation:

- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service farm plan to protect water supplies.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

- ✓ Encourage farmers to participate in Integrated Pest Management (IPM) Certification: *Partners with Nature*, which is a voluntary, collaborative effort of the Department of Food and Agriculture (DFA), the UMass Extension, and the USDA's Farm Service Agency which recognizes growers who practice IPM. This program certifies the practice by which certain crops are grown. Growers who follow specific IPM guidelines, and complete a verification process become IPM-certified. Participants are licensed to display the *Partners with Nature* trademark, and receive educational and marketing materials for public distribution and display.

What are "BMPs?"

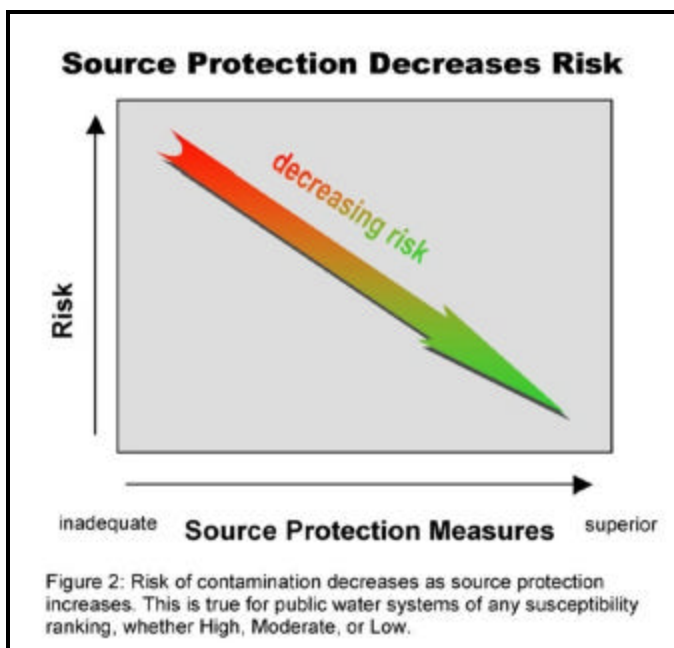
Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

3. Residential Land Uses – Approximately 78% of the Zone II consists of residential areas. Only a very small portion of these areas has public sewers, and so all residences use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they could be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.



5. Golf Courses - Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Courses Recommendations:

- ✓ Encourage the golf course grounds manager to incorporate an **Integrated Pest Management (IPM)** approach into their grounds maintenance program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Agricultural				
Fertilizer Storage or Use	1	M	221	Leaks, spills, improper handling, or over-application of fertilizers
Landscaping	1	M	221	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Manure Storage or Spreading	1	H	221	Manure (microbial contaminants): improper handling
Nurseries	1	M	221	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Pesticide Storage or Use	1	H	221	Leaks, spills, improper handling, or over-application of pesticides
Commercial				
Body Shops	1	H	221	Vehicle paints, solvents, and primer products: improper management
Gas Stations	7	H	221	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	4	H	221	Automotive fluids, and solvents: spills, leaks, or improper handling
Cemeteries	2	M	221	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Dry Cleaners	1	H	221	Spills, leaks, or improper handling of solvents and wastes
Golf Courses	2	M	8, 221	Over-application or improper handling of fertilizers or pesticides
Photo Processors	1	H	221	Photographic chemicals: spills, leaks, or improper handling or storage
Industrial				
Hazardous Materials Storage	16	H	8, 81, 221, 475	Hazardous materials: spills, leaks, or improper handling or storage
Residential				
Fuel Oil Storage (at residences)	Numerous	M	8, 81, 221, 475	Fuel oil: spills, leaks, or improper handling
Lawn Care/ Gardening	Numerous	M	8, 81, 221, 475	Pesticides: over-application or improper storage and disposal

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Residential				
Septic Systems / Cesspools	Numerous	M	8, 81, 221, 475	Household hazardous waste: improper disposal, and microbial contaminants
Miscellaneous				
Aquatic Wildlife	Numerous	L	8, 81, 221, 475	Microbial contaminants
Landfills and Dumps	1	H	8	Seepage of leachate
Military Facilities (Past And Present)	1	H	475	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump sites
Oil or Hazardous Material Sites	8	----	221	Oil or hazardous materials and waste: spills, leaks, or improper handling or storage
Road And Maintenance Depots	1	M	8	Asphalt materials and other chemicals, aboveground and underground storage tanks with gasoline and diesel storage: spills, leaks, or improper handling of deicing materials
Schools, Colleges, and Universities	3	M	8	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small quantity hazardous waste generators	4	M	221	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Numerous	L	8, 81, 221, 475	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way - Type: <u>electric</u>	1	L	8	Construction and corridor maintenance, over-application or improper handling of pesticides
Transportation Corridors	1	M	8, 221	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	17	H	221	Spills, leaks, or improper handling stored materials
Very Small Quantity Hazardous Waste Generator	5	L	221	Hazardous materials and waste: spills, leaks, or improper handling or storage
Wastewater Treatment Plant/Collection Facility/Lagoon	1	M	221	Treatment chemicals or equipment maintenance materials: improper handling or storage; wastewater, improper management
Water Supply Protection Area % that is Sewered = <1%				
Notes:				
<ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites. 				
<p>THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater</p>				

- ✓ Promote **Best Management Practices (BMPs)** for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.

6. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0003325, 30013302, 3-0013574, 3-0014042, 3-0015706, 3-0015943, 3-0019482. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

7. Protection Planning – The Town of Wayland has water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.

Other land uses and activities within the Zone II that may be potential contaminant sources include auto repair shops, gas stations, and schools. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased groundwater monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values - clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Applying for, and receiving a Source Protection Grant from DEP for the replacement of the Baldwin Pond Wells facility’s septic system with a tight tank.
- A land acquisition program that focuses on source protection.

Source Protection Recommendations:

To better protect drinking water sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead Protection Plan.

Resources for Drinking Water Source Protection:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department’s Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the Grant Program (RFR).

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection’s Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

Conclusion:

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

For More Information

Contact Anita Wolovick in DEP’s Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Baldwin Pond Wells, Happy Hollow Wells, and Meadowview Well)	To the extent possible, remove all non water supply activities from each Zone I to comply with DEP's Zone I requirements. Investigate options for gaining ownership or control of the Zone I for these sources.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Monitor non-water supply activities in Zone Is, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town "Aquifer Protection District" bylaw meets DEP's best efforts for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	Unknown	Work with the towns of Framingham, Lincoln, and Sudbury to develop land use restrictions that meet 310 CMR 22.21 (2), and to include Wayland's Zone IIs in their wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	NO	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN WAYLAND WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
30802	WAYLAND COUNTRY CLUB	121 OLD SUDBURY RD	WAYLAND	HANDLER	SMALL QUANTITY GENERATOR
135841	COOKS AUTOMOTIVE (CONCORD OIL)	356 BOSTON POST RD	WAYLAND	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
135841	COOKS AUTOMOTIVE INC / CITGO	356 BOSTON POST RD	WAYLAND	FUEL DISPENSER	FUEL DISPENSER
209293	DAVE STARMER TEXACO	338 BOSTON POST RD	WAYLAND	FUEL DISPENSER	FUEL DISPENSER
177638	EXXON CO USA 35692	28 BOSTON POST RD	WAYLAND	HANDLER	VERY SMALL QUANTITY GENERATOR
320142	POLAROID CORPORATION	400 BOSTON POST RD	WAYLAND	HANDLER	VERY SMALL QUANTITY GENERATOR
320142	POLAROID CORPORATION	400 BOSTON POST RD	WAYLAND	HANDLER	VERY SMALL QUANTITY GENERATOR
320142	POLAROID CORPORATION	400 BOSTON POST RD	WAYLAND	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
320142	POLAROID CORPORATION	400 BOSTON POST RD	WAYLAND	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
135842	SHEPARDS MOBIL STA.	268 BOSTON POST RD	WAYLAND	FUEL DISPENSER	FUEL DISPENSER
135842	SHEPARDS MOBIL STA.	268 BOSTON POST RD	WAYLAND	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
34923	STARMER DAVID TEXACO	338 BOSTON POST RD	WAYLAND	HANDLER	VERY SMALL QUANTITY GENERATOR
131926	STATE ROAD AUTO BODY INC	292 BOSTON POST RD	WAYLAND	HANDLER	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
321354	TEDESCHI FOOD SHOP #111	28 BOSTON POST RD	WAYLAND	FUEL DISPENSER	FUEL DISPENSER
294469	WAYLAND CLEANERS & LAUNDERERS	298 BOSTON POST RD	WAYLAND	HANDLER	SMALL QUANTITY GENERATOR
265874	WAYLAND HIGHWAY GARAGE	195 MAIN ST	WAYLAND	HANDLER	VERY SMALL QUANTITY GENERATOR
265874	WAYLAND HIGHWAY GARAGE	195 MAIN ST	WAYLAND	HANDLER	VERY SMALL QUANTITY GENERATOR
265874	WAYLAND HIGHWAY GARAGE	195 MAIN ST	WAYLAND	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
265874	WAYLAND HIGHWAY GARAGE	195 MAIN ST	WAYLAND	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

UNDERGROUND STORAGE TANKS WITHIN WAYLAND WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
COOK'S AUTOMOTIVE	356 BOSTON POST ROAD	WAYLAND	SERVICE STATION	4000	GASOLINE
COOK'S AUTOMOTIVE	356 BOSTON POST ROAD	WAYLAND	SERVICE STATION	4000	GASOLINE
COOK'S AUTOMOTIVE	356 BOSTON POST ROAD	WAYLAND	SERVICE STATION	4000	GASOLINE
COOK'S AUTOMOTIVE	356 BOSTON POST ROAD	WAYLAND	SERVICE STATION	4000	DIESEL
DAVE STARMER TEXACO	338 BOSTON POST ROAD	WAYLAND	GAS STATION	8000	GASOLINE
DAVE STARMER TEXACO	338 BOSTON POST ROAD	WAYLAND	GAS STATION	6000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
DAVE STARMER TEXACO	338 BOSTON POST ROAD	WAYLAND	GAS STATION	4000	GASOLINE
SHEPARD'S MOBIL	268 BOSTON POST ROAD	WAYLAND	GAS STATION	6000	GASOLINE
SHEPARD'S MOBIL	268 BOSTON POST ROAD	WAYLAND	GAS STATION	5000	GASOLINE
SHEPARD'S MOBIL	268 BOSTON POST ROAD	WAYLAND	GAS STATION	5000	GASOLINE
SHEPARD'S MOBIL	268 BOSTON POST ROAD	WAYLAND	GAS STATION	3000	GASOLINE
TEDESCHI FOOD SHOP/EXXON	28 BOSTON POST ROAD	WAYLAND	GAS STATION	12000	GASOLINE
TEDESCHI FOOD SHOP/EXXON	28 BOSTON POST ROAD	WAYLAND	GAS STATION	10000	GASOLINE
TEDESCHI FOOD SHOP/EXXON	28 BOSTON POST ROAD	WAYLAND	GAS STATION	10000	GASOLINE
TEDESCHI FOOD SHOP/EXXON	28 BOSTON POST ROAD	WAYLAND	GAS STATION	6000	DIESEL
WAYLAND COUNTRY CLUB	121 OLD SUDBURY ROAD	WAYLAND	COUNTRY CLUB	1000	GASOLINE
WAYLAND COUNTRY CLUB	121 OLD SUDBURY ROAD	WAYLAND	COUNTRY CLUB	500	GASOLINE

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Wayland Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0003325	268 Boston Post Rd	Wayland	Oil
3-0013302	430 Boston Post Rd	Wayland	Oil
3-0013574	430 Boston Post Rd	Wayland	Hazardous Material
3-0014042	430 Boston Post Rd	Wayland	Oil And Hazardous Material
3-0015706	4 Plain Rd	Wayland	Oil
3-0015943	4 Plain Rd	Wayland	Oil
3-0017974	356 Boston Post Rd	Wayland	Oil
3-0019482	430 Boston Post Rd	Wayland	Hazardous Material

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Wellesley Water Division

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Wellesley Water Division
<i>PWS Address</i>	455 Worcester Street
<i>City/Town</i>	Wellesley, Massachusetts 02481-4925
<i>PWS ID Number</i>	3317000
<i>Local Contact</i>	Joseph Duggan - Superintendent
<i>Phone Number</i>	(781) 235-7600

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

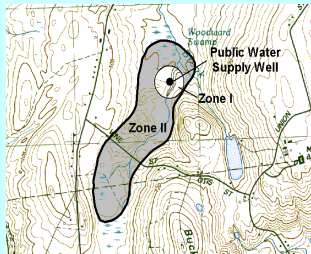
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 153

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Morses Pond Wells	3317000-03G

Zone II #: 275

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Wellesley Ave. Dug Wells	3317000-02G
Rosemary Well	3317000-04G
Longfellow Well	3317000-05G
T.F. Coughlin Well	3317000-06G

The wells for the Wellesley Water Division are located within two separate water supply protection areas, with portions of Zone II #275 extending into the town of Needham. Each well has a Zone I radius of 400 feet. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The Wellesley Water Division purchases a portion of its water supply from the Massachusetts Water Resources Authority (MWRA). Attached, please find a copy of the SWAP report prepared for the MWRA sources.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone IIs for Wellesley are a mixture primarily of residential, forest, and recreational land uses, with a small portion consisting of other uses such as commercial (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Agricultural and Golf Course Activities
3. Residential Land Uses
4. Transportation Corridors
5. Oil or Hazardous Material Contamination Sites
6. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone I – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The following non-water supply activities occur in the Zone Is of the system wells:

Morses Well - There are two homes, both of which are on municipal sewer, and a local road in the Zone I.

Wellesley Avenue Dug Well - There are five homes, two of which are on private septic systems, and a local road in the Zone I.

Rosemary Well - A portion of a car dealership, and Route 9 in the Zone I.

Longfellow Well - Route 9 crosses through the northern portion of the Zone I.

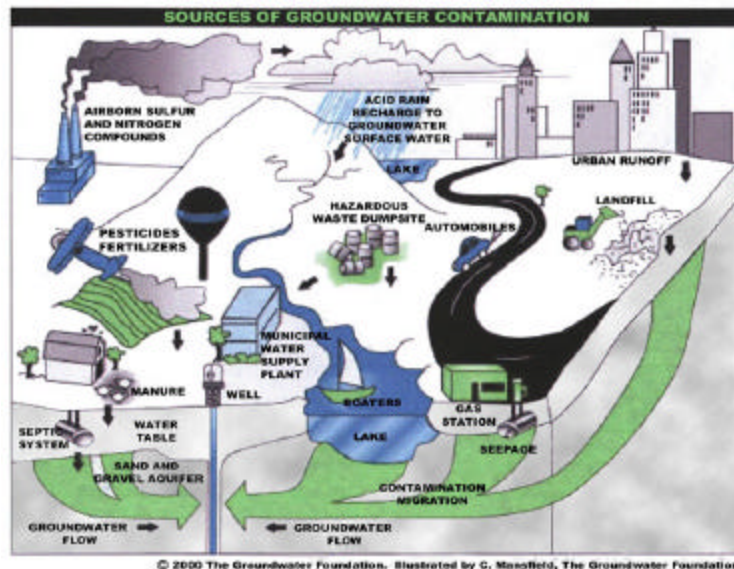
T.F. Coughlin Well - There are five homes, two of which are on private septic systems, and a local road in the Zone I.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ Agreement Options - Attempt to obtain a *Memorandum of Understanding*.

Memorandum of Understanding (MOU) is an agreement between the landowner and public water supplier in which the landowner agrees not to engage in specific threatening activities. The MOU should be specific to the land use or activity. For instance, if the land is residential with a septic system the owner could agree not to place chemicals, petroleum products, or other hazardous or toxic substances, including septic system cleaners into the septic system, and that the system will be pumped at a specific frequency. The application of lawn care chemicals could also be restricted. Understanding how activity threatens drinking water quality is an important component of developing an effective MOU.

2. Golf Course and Agricultural Activities – Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed of. If not contained or applied properly, animal waste from barnyards, manure pits and field application is a potential source of contamination to ground and surface water.



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**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Course and Agricultural Activities Recommendations:

- ✓ Encourage owners and operators of agricultural operations to consult with the Massachusetts Department of Food and Agriculture's regarding "On-Farm Strategies to Protect Water Quality - An Assessment & Planning Tool for Best Management Practices" (December 1996) for information about technical and financial assistance programs related to erosion and sediment control and nutrient, pest, pesticide, manure, waste, grazing, and irrigation management.

- ✓ Partner with farmers in your protection areas to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service (NRCS) farm plan to protect water supplies.
- ✓ Encourage the farmers and golf course managers to incorporate an **Integrated Pest Management (IPM)** approach into their pest management program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other agricultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote **Best Management Practices (BMPs)** for fuel oil storage,

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

hazardous material handling, storage, disposal, and emergency response planning.

- ✓ Work with farmers and golf courses to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.

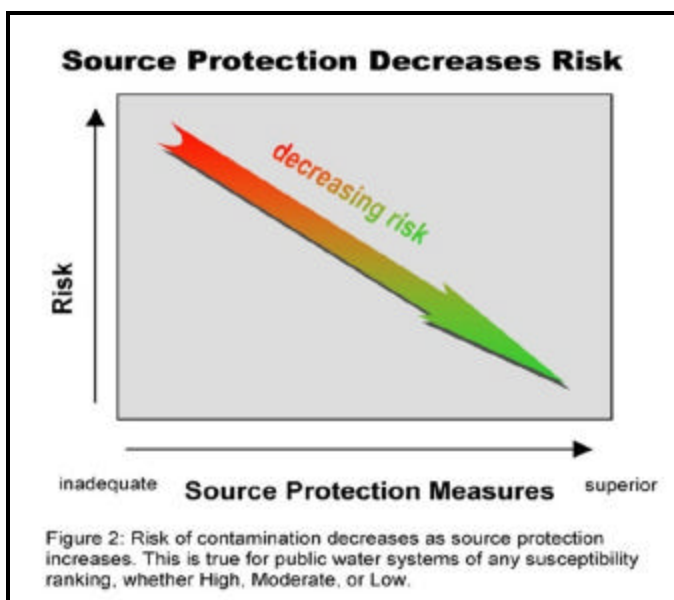
3. Residential Land Uses – If managed improperly, activities associated with residential areas can contribute to drinking water contamination.

Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they could be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.



- ✓ Promote BMPs for stormwater management and pollution controls.

4. Transportation Corridors - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash in to catchbasins.

Transportation Corridor Recommendations:

- ✓ Identify stormwater drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge stormwater outside of the Zone II.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular

(Continued on page 6)

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Agricultural				
Fertilizer Storage or Use	1	M	275	Leaks, spills, improper handling, or over-application of fertilizers
Livestock Operations	1	M	275	Improper handling of manure (microbial contaminants)
Pesticide Storage or Use	1	H	275	Leaks, spills, improper handling, or over-application of pesticides
Commercial				
Body Shops	1	H	275	Improper management of vehicle paints, solvents, and primer products
Service Stations/ Auto Repair Shops	2	H	275	Spills, leaks, or improper handling of automotive fluids, and solvents
Cemeteries	2	M	275	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Golf Courses	1	M	275	Over-application or improper handling of fertilizers or pesticides
Medical Facilities	1	M	275	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes
Photo Processors	1	H	275	Spills, leaks, or improper handling or storage of photographic chemicals
Railroad Tracks And Yards	2	H	153, 275	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Residential				
Fuel Oil Storage (at residences)	numerous	M	153, 275	Spills, leaks, or improper handling of fuel oil
Lawn Care/ Gardening	numerous	M	153, 275	Over-application or improper storage and disposal of pesticides
Septic Systems/ Cesspools	numerous	M	153, 275	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous				
Aboveground Storage Tanks	2	M	275	Spills, leaks, or improper handling of materials stored in tanks

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Miscellaneous				
Fishing/ Boating	1	L	275	Fuel and other chemical spills, microbial contaminants
Military Facilities (Past And Present) Type: Nike Site	1	H	275	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/dump sites
Oil or Hazardous Material Sites	5	--	275	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	3	M	153, 275	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small quantity hazardous waste generators	1	M	275	Spills, leaks, or improper handling or storage of hazardous materials and waste
Snow Dump	1	M	275	Improper handling of melt water containing de-icing and other chemicals from roads and parking lots
Stormwater Drains/ Retention Basins	numerous	L	153, 275	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way	1	L	275	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	2	M	275	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	3	H	275	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generator	2	L	275	Spills, leaks, or improper handling or storage of hazardous materials and waste
Water Supply Protection Area % that is Sewered = 50%				
Notes:				
1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.				
2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.				
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.				
THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater				

(Continued from page 4)

- schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Work with Town and State emergency response teams to ensure that any spills within the Zone IIs can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with city officials to investigate mapping options such as those in the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

5. Presence of Oil or Hazardous Material Contamination Sites – The Zone II for the Wellesley Ave., Rosemary, Longfellow, and Coughlin Wells contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0000386, 3-0000391, 3-0003480, 3-0010939, and 3-0012050. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

6. Protection Planning – The Town of Wellesley does not have water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21 (2). If there are no local controls or they do not meet the current regulations, adopt controls that meet 310 CMR 22.21(2). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floordrains, be sure to include floordrain controls that meet 310 CMR 22.21(2).

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Redirecting drainage outside of the Zone II from the section of Route 9 that is adjacent to the Rosemary Well
- Town sponsored monitoring of Rosemary Meadow observation wells off Wellesley Avenue
- Homeowner’s pesticide awareness program through the Natural Resource Commission

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	NO	To the extent possible, remove non-water supply activities from each Zone I to comply with DEP's Zone I requirements. Investigate options for gaining ownership or control of the Zone I for groundwater sources.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply -related activities the only activities within the Zone I?	NO	Monitor non-water supply activities in Zone I, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO	Work with the Planning Board and the Selectmen to develop bylaws that meet land use controls required by 310 CMR 22.21(2) and 310 CMR 22.20B & C. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	Unknown	Work with the town of Needham to develop land use restrictions that meet 310 CMR 22.21(2), and to include Wellesley's Zone II in their wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report, Natural Resource Commission, and DPW newsletter. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial and municipal uses within the Zone II.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead Protection Plan.

Resources for Drinking Water Source Protection:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

Conclusions:

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

APPENDIX A: DEP PERMITTED FACILITIES WITHIN WELLESLEY'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
222001	DAVID RICH PRINTING COMPANY	118 CEDAR ST	WELLESLEY	HANDLER	Very Small Quantity Generator
328006	AMTRAK	WEST STREET AND HIGHLAND AVENUE	NEEDHAM	HANDLER	Very Small Quantity Generator
328006	AMTRAK	WEST STREET AND HIGHLAND AVENUE	NEEDHAM	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
325907	CVS #2128	936 HIGHLAND AVENUE	NEEDHAM	HANDLER	Small Quantity Generator
325907	CVS #2128	936 HIGHLAND AVENUE	NEEDHAM	DISCHARGE	MWRA SEWER CONNECTION
363367	HIGHLAND CAR CARE CENTER INC	1032 HIGHLAND AVENUE	NEEDHAM	FUEL DISPENSER	Fuel Dispenser
52510	ROSEMARY OFFICE CENTER	145 ROSEMARY ST	NEEDHAM	PLANT	AIR QUALITY MINOR

UNDERGROUND STORAGE TANKS WITHIN WELLESLEY'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
HIGHLAND CAR CARE CENTER/1032 HIGHLAND AVE	1032 HIGHLAND AVENUE	NEEDHAM	GAS STATION	10000	GASOLINE
HIGHLAND CAR CARE CENTER/1032 HIGHLAND AVE	1032 HIGHLAND AVENUE	NEEDHAM	GAS STATION	6000	GASOLINE/DIESEL
VERIZON	540 HILLSIDE AVENUE	NEEDHAM	UTILITIES	4000	GASOLINE

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Wellesley’s Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

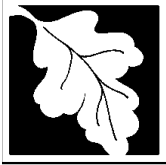
For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0000386	101-145 Crescent Road	Needham	Oil and Hazardous Material
3-0000391	150 West Street	Needham	Oil
3-0003480	1032 Highland Avenue	Needham	Oil
3-0010939	150 West Street	Needham	Oil
3-0012050	400 Hillside Avenue	Needham	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Wellesley College

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Wellesley College
<i>PWS Address</i>	106 Central Street
<i>City/Town</i>	Wellesley, Massachusetts 02481
<i>PWS ID Number</i>	3317001
<i>Local Contact</i>	Don Rivers
<i>Phone Number</i>	(781) 283-2772

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

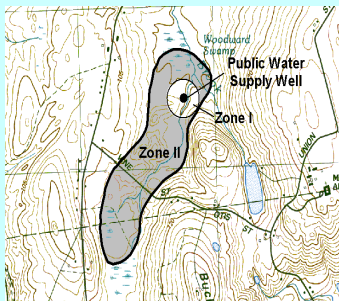
Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Attachments

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Section 1: Description of the Water System

<i>Zone II #:</i>	<i>Susceptibility:</i>
<i>Well Names</i>	<i>Source IDs</i>
Botany Well #1	3317001-01G
Botany Well #2	3317001-02G

The Wellesley College Wells are located in the northeast section of the Wellesley College campus. Both wells have a Zone I radius of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The Zone II for the Wellesley College Wells is a mixture primarily of urban open space, forest and residential land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Key Land Uses and Protection Issues include:

1. Inappropriate Activities in Zone I
2. Hazardous Materials Storage and Use
3. Residential Land Uses
4. Transportation Corridors
5. Oil or Hazardous Material Contamination Sites
6. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Inappropriate Activities in Zone Is – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities. The Zone Is for Wellesley College Botany Wells contain a portion of the campus road, campus buildings and a small portion of a parking area.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Hazardous Materials Storage and Use – Many colleges and small businesses use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate college staff on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP’s for common business issues.
- ✓ Educate college staff on Massachusetts floor drain requirements. See brochure “Industrial Floor Drains” for more information.

3. Residential Land Uses – Approximately 11% of the Zone II consists of residential areas. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

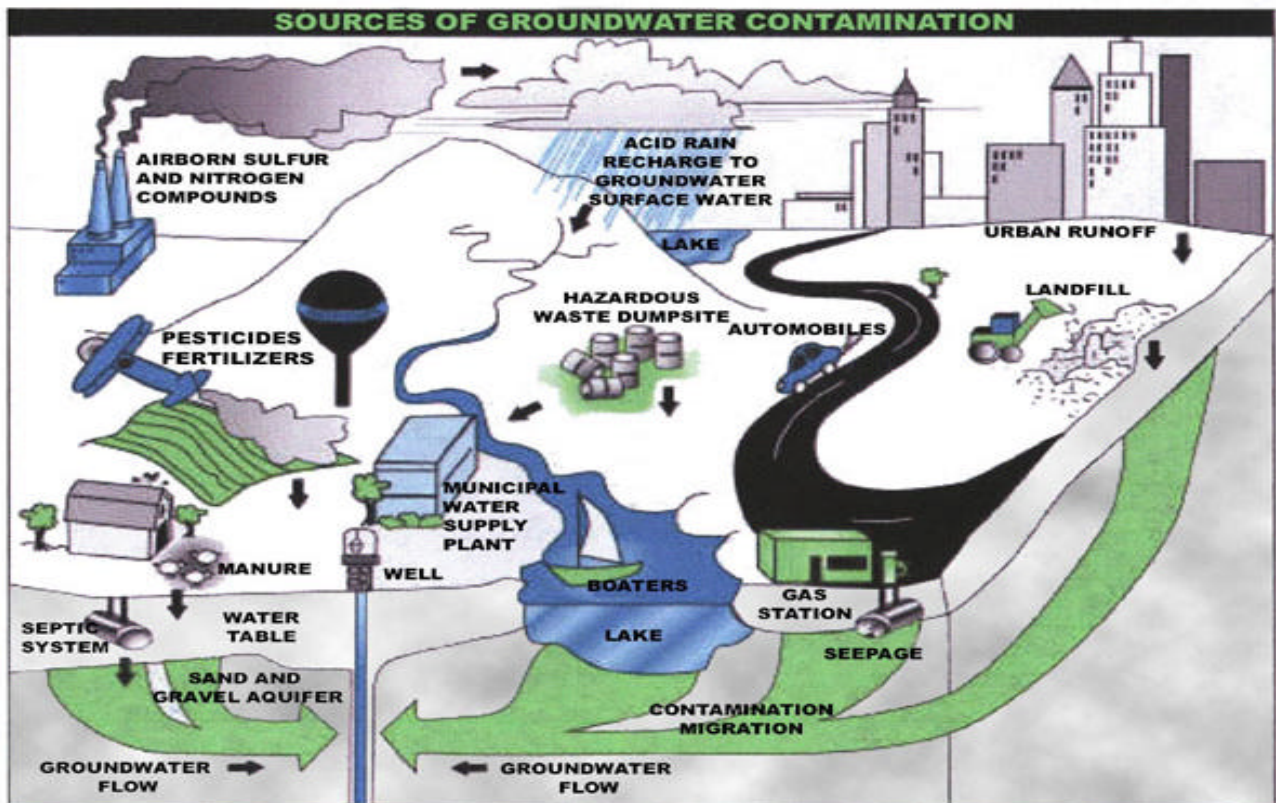
- ◆ **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- ◆ **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- ◆ **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

**Benefits
of Source Protection**

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



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- ◆ **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Work with the Town to educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with the Town and planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

4. Transportation Corridors - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include substances from automotive leaks, maintenance, washing, or accidents.

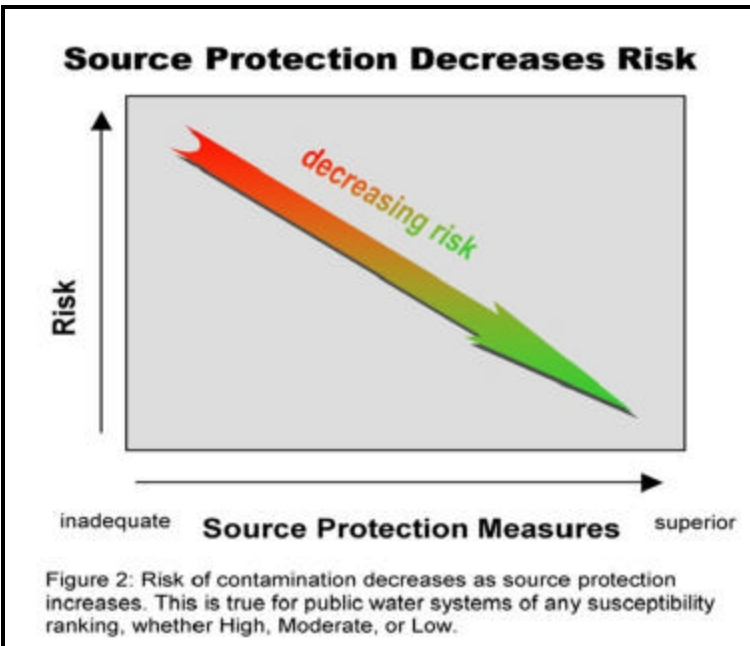
Transportation Corridor Recommendations:

- ✓ Work with the Town to regularly inspect Zone II for illegal dumping and spills.
- ✓ Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

5. Presence of Oil or Hazardous Material Contamination Sites – The Zone II for the Botany Wells contains a DEP Tier Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Numbers 3-0000462, 3-0011653, and 3-0019712. Refer to the attached map and Appendix 3 for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.



6. Comprehensive Wellhead Protection Planning – The Town of Wellesley does not have water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.

(Continued on page 6)

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Potential Source of Contamination
Commercial			
Golf Courses	1	M	Over-application or improper handling of fertilizers or pesticides
Railroad Tracks And Yards	1	H	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel
Residential			
Fuel Oil Storage (at residences)	Numerous	M	Spills, leaks, or improper handling of fuel oil
Lawn Care / Gardening	Numerous	M	Over-application or improper storage and disposal of pesticides and fertilizers
Septic Systems	Numerous	M	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous			
Aboveground Storage Tanks	1	M	Spills, leaks, or improper handling of materials stored in tanks
Oil or Hazardous Material Sites	3	--	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified
Schools, Colleges, and Universities	1	M	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small quantity hazardous waste generators	1	M	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transportation Corridors	2	M	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides

Activities	Quantity	Threat*	Potential Source of Contamination
Miscellaneous			
Underground Storage Tanks	3	H	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Gen-	1	L	Spills, leaks, or improper handling or storage of hazardous materials and waste
<p>Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>			

(Continued from page 4)

- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

Other land uses and activities within the Zone II are listed in Table 2. Refer to Table 2 for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

As with many water supply protection areas, the system's Zone II contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Active participation in Wellesley Environment & Energy Defense (WEED), a Wellesley College student group
- Source protection training for campus police, maintenance staff, and grounds crew
- Adoption of a spill prevention control and counter-measure plan

Implementing protection measures and best management practices (BMPs) will reduce the Wellesley College Wells susceptibility to contamination. Wellesley College should review and adopt the key recommendations above and the following:

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone Is regularly, and when feasible, remove any non-water supply activities.
- ✓ Organize a wellhead protection committee comprised of stakeholders from both the public and private sectors to implement the Wellhead Protection Plan

- ✓ Educate campus residents on ways they can help you to protect drinking water sources.
- ✓ Locate stormwater drainage in your Zone II and cooperate on responding to spills or accidents.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department’s Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection’s Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

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Section 4: Attachments

- A. Protection Recommendations
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- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
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Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

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Copies of this report have been provided to the public water supplier, board of health, and the town.

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	NO	Economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue routine inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Continue monitoring for non-water supply activities in Zone Is that may have potential impact on wells .
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21 (2)?	NO	Work with the Town of Wellesley to adopt a Groundwater Protection General By-law that includes Wellesley College Zone II. Refer to www.state.ma.us/dep/brp/dws/ for model by-laws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	N/A	
Planning		
Does the PWS have a Wellhead Protection Plan?	YES	Included in Master Plan. Review "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ for additional information.
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	N/A	
Does the Board of Health conduct inspections of commercial and industrial activities?	N/A	Continue in-house and third-party inspections.
Does the PWS provide wellhead protection education?	YES	Through student groups, consumer confidence reports, and staff training. Continue to aim wellhead protection efforts at campus uses within the Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN WELLESLEY COLLEGE'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
11755	WELLESLEY COLLEGE	300 CENTRAL STREET	WELLESLEY	DISCHARGE	MWRA SEWER CONNECTION
11755	WELLESLEY COLLEGE	300 CENTRAL STREET	WELLESLEY	HANDLER	VERY SMALL QUANTITY GENERATOR
11755	WELLESLEY COLLEGE	300 CENTRAL STREET	WELLESLEY	HANDLER	SMALL QUANTITY GENERATOR OF HAZARDOUS WASTE

UNDERGROUND STORAGE TANKS WITHIN WELLESLEY COLLEGE'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
WELLESLEY COLLEGE	300 CENTRAL STREET	WELLESLEY	INSTITUTION	55000	FUEL OIL
WELLESLEY COLLEGE	300 CENTRAL STREET	WELLESLEY	INSTITUTION	55000	FUEL OIL
WELLESLEY COLLEGE	300 CENTRAL STREET	WELLESLEY	INSTITUTION	1000	FUEL OIL

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Wellesley College’s Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0011653	Morses Pond Outlet Culvert Route 135	Wellesley	Hazardous Material
3-0000462	Paintshop Pond Central St. – Route 135	Wellesley	Hazardous Material
3-0019712	106 Central Street	Wellesley	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for

Wenham Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Wenham Water Department
<i>PWS Address</i>	91 Grapevine Road
<i>City/Town</i>	Wenham
<i>PWS ID Number</i>	3320000
<i>Local Contact</i>	Bruce Blanchard - Water Superintendent
<i>Phone Number</i>	978-468-5531

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

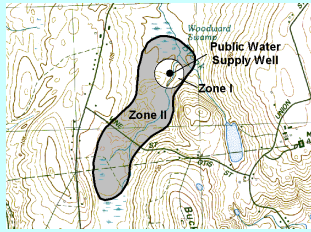
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Additional Resources Available for Source Protection
5. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

Zone II #: 131		Susceptibility: High	
Well Names		Source IDs	
Pleasant Street G.P. Well #1		3320000-01G	
Pleasant Street G.P. Well #2		3320000-02G	

The wells for Wenham Water Department are located on the east side of Pleasant Street and south of Pleasant Pond. Each well has a Zone I radius of 400 feet. The wells are located in a semi-confined aquifer with a high vulnerability to contamination due to the absence of full hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II. Both wells have zinc orthophosphate added for corrosion control, and sodium fluoride added to prevent tooth decay.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The Zone II for Wenham is a mixture of forest, residential, wetlands, crop and pasture land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key issues include:

1. Inappropriate Activities in Zone I
2. Underground Storage Tanks
3. Septic Systems
4. Stormwater Catch Basins
5. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for Wenham is high, based on the presence of at least one high threat land use within the Zone II, as seen in Table 2.

1. Inappropriate Activities in Zone I – Some older wells may not meet the Zone I requirement. In many cases the land is owned by residents, businesses, farmers, or schools. Among the significant threats to water supplies are septic systems, fertilizers, storm water runoff and underground storage tanks which often accompany these land uses.

Wenham is currently working with landowners involved in an effort to negotiate a land swap or conservation easements for the land within Zone I.

Inappropriate Activities in Zone I - Recommendations

- ✓ **Ownership or Control** - Investigate options for ownership or control of the Zone I. If outright ownership is not an immediate option, attempt to negotiate a Conservation Restriction for the purposes of providing and promoting exclusive and perpetual protection of water supply and water quality.

- ✓ **Agreement Options** - Until land is available, attempt to obtain a *Memorandum of Understanding*.

Memorandum of Understanding (MOU) is an agreement between the landowner and public water supplier in which the landowner agrees not to engage in specific threatening activities. The MOU should be specific to the land use or activity. For instance, if the land is residential with a septic system the owner could agree not to place chemicals, petroleum products, or other hazardous or toxic substances, including septic system cleaners into the septic system, and that the system will be pumped at a specific frequency. Understanding how an activity threatens drinking water quality is an important component of developing an effective MOU.

- ✓ **Septic System Relocation** – Coordinate efforts with the landowner to locate the septic system. If the septic system is located in the Zone I, determine the feasibility of relocating it outside of the Zone I.

2. Underground Storage Tanks – Underground storage tanks were commonly used for home heating oil. Many steel tanks still in use are aging and have little or no protection against the corrosive action of soil and water. In most cases, the presence of petroleum products in groundwater can be attributed to leaking underground storage tanks and piping systems, and accidental spills and leaks. Each tank is a threat to groundwater quality, with leaking tanks posing a serious threat.

Underground Storage Tanks – Recommendations:

- ✓ **Inventory**- With the assistance of the local fire department, Board of Health, and local fuel companies, determine the location of all underground storage tanks (including all abandoned tanks).
- ✓ **Inspection** – Once the location of tanks is determined, coordinate efforts with landowners to have tanks inspected.
- ✓ **Removal** – Develop a program to remove and properly dispose of abandoned tanks.
- ✓ **Local Controls** – Adopt an Underground Storage Tank Bylaw or Health Regulation to address permitting, installation, testing, removal, and other standards that are appropriate to the Town of Wenham.

3. Septic Systems – A properly designed, installed, and maintained septic system outside the Zone I poses no threat to groundwater. However, inadequately functioning and/or failing septic systems can contribute to the contamination of groundwater. Wastewater from septic systems may include many types of contaminants, such as nitrates, harmful bacteria, viruses, and hazardous waste.

Septic Systems – Recommendations:

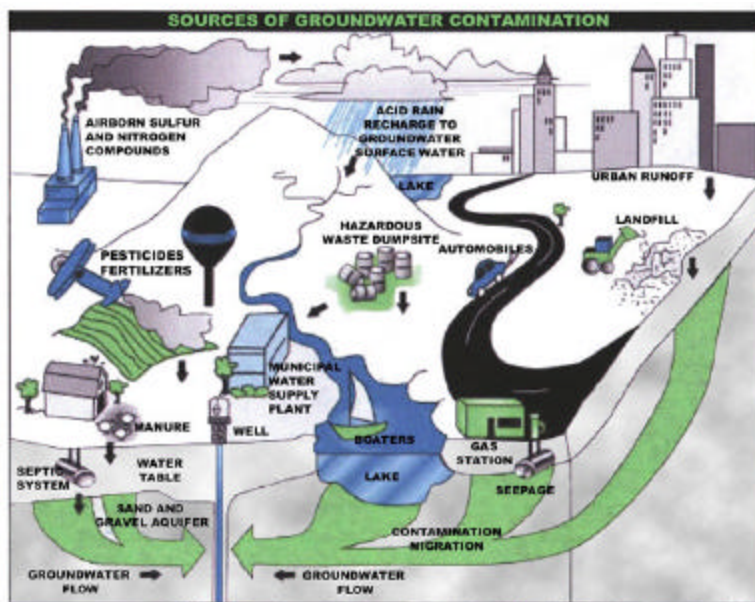
- ✓ **Education** - Distribute educational material to households about the importance of septic system maintenance. Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



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- ✓ **System Care** – Provide information to residents about using cleaning compounds that are safe for the septic system, on proper disposal practices, i.e. only sanitary waste in the septic system. Information on septic systems can be found at Massachusetts Department of Environmental Protections website <http://www.state.ma.us/dep/brp/files/yoursyst.htm>.
- ✓ **Proper Disposal** - Educate residents on the problem of disposing of hazardous materials in septic systems. Residents should dispose of used oil, antifreeze, paints, and other household chemicals properly - not in septic systems.
- ✓ **Alternative Products** - Provide residents with information on options that are available to substitute less hazardous substances for many products used in the home.

4. Stormwater Catch Basins – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.



Stormwater Catch Basins – Recommendations:

- ✓ **Best Management Practices** - Work with the Town to develop Best Management Practices that are the most effective, practical means of preventing or reducing pollution from nonpoint sources. Information is available at <http://www.epa.gov/OWOW/NPS/roads.html>.
- ✓ **Local Controls** - Encourage local officials to develop a local stormwater ordinance. For more information see <http://www.epa.gov/owow/nps/ordinance/stormwater.htm>
- ✓ **Storm Drain Stenciling Program** - Work with local watershed groups to institute a Storm Drain Stenciling Program. For more information on how to develop a storm drain stenciling program go to <http://www.earthwater-stencils.com>.
- ✓ **Wellhead Protection Grants** – Continue working towards applying for a Wellhead Protection Grant from DEP for the purpose of addressing stormwater drainage in the Zone II, and for working with the Town to address the “Phase II Stormwater Regulations”.

5. Protection Planning - Protection planning prevents drinking water contamination by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are numerous resources available to help communities in developing a plan for protecting drinking water supply wells.

Protection Planning - Recommendation:

- ✓ **Local Controls** - Coordinate efforts with local officials in Wenham, Hamilton, Danvers, Beverly and Topsfield to compare existing controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://www.state.ma.us/dep/brp/dws/>.

What are "BMPs?"

Best Management Practices are structural (i.e. oil & grease trap catch basins), nonstructural (i.e. hazardous waste collection days) or managerial measures that are used to protect and improve surface water and groundwater quality.

- ✓ **Develop a Wellhead Protection Plan** – Establish a local team, and refer them to <http://www.state.ma.us/dep/brp/dws/> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan”.
- ✓ **Land Acquisition Plan** – Work with local officials to develop a land acquisition plan. Land acquisition projects protect water supplies by limiting the land development potential. Acquisitions can be accomplished by municipal water systems through conservation restrictions, land banking, land purchases and land donations. Sample conservation restrictions are available at <http://www.state.ma.us/dep/brp/dws/>. The Town of Wenham is fortunate that its Zone II still has significant forest (refer to attached maps for percentage of forest). However, future development of Zone II is a major concern. The Department recommends that the town acquire Zone II land closest to the Zone I or land that is subject to high-risk development (refer to Developing a local Wellhead Protection Plan).

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix 2: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Potential Source of Contamination
Commercial			
Service Stations/ Auto Repair Shops	2	H	Automotive fluids, and solvents: spills, leaks, or improper handling
Residential			
Fuel Oil Storage (at residences)	Numerous	M	Fuel oil: spills, leaks, or improper handling
Lawn Care / Gardening	Numerous	M	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Numerous	M	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous			
Aboveground Storage Tanks	Numerous	M	Materials stored in tanks: spills, leaks, or improper handling
Landfills and Dumps	1	H	Seepage of leachate
Small quantity hazardous waste generators	2	M	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Numerous	L	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights- of-Way - Type: <u>high pressure natural gas</u>	1	L	Corridor maintenance pesticides: over-application or improper handling; construction
Underground Storage Tanks	3	H	Stored materials: spills, leaks, or improper handling
Utility Substation Transformers	Numerous	L	Chemicals and other materials including PCBs: spills, leaks, or improper handling
Very Small Quantity Hazardous Waste Generator	2	L	Spills, leaks, or improper handling or storage of hazardous materials and waste

Water Supply Protection Area % that is Sewered = 0%

Notes:

- When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
- For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
- For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

Other land uses and activities that may be potential contaminant sources include auto body shops, gas stations, and schools. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential contaminant sources is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination.

Once potential contaminant sources are identified, specific recommendations like those below should be used to better protect the Wenham wells.

Section 3: Source Water Protection

Implementing source protection measures and Best Management Practices (BMPs) will reduce the Wenham Water Supply System's susceptibility to contamination. Additional source protection recommendations are listed in Table 3 and the Key Issues above.

Wenham is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Adopting, through the Wenham Board of Health, a Groundwater Protection Regulation that meets current MA Wellhead Protection Regulations 310 CMR 22.21(2).
- Applying for a Source Water Protection Grant to identify and inspect existing residential underground fuel oil tanks.
- Performing catch basin inspections, maintenance, and cleaning on an annual basis. Additionally, street and parking lot sweeping is conducted in the spring.

Appendix 1 includes specific recommendations for each of the following:

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

➤ Partner with Local Businesses:

Since many small businesses and industries use hazardous materials and produce hazardous waste products, it is essential to educate the business community about drinking water protection. Encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

➤ Educate Residents:

If managed improperly, household hazardous waste, septic systems, lawn care, and pet waste can all contribute to groundwater contamination. Hazardous materials include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Animal waste is also a source of microbial contamination.

➤ Provide Outreach to the Community:

Public education and community outreach ensure the long-term protection of drinking water supplies. Awareness often generates community cooperation and support. Residents and business owners are more likely to change their behavior if they know where the wellhead protection recharge area is located; what types of land uses and activities pose threats; and how their efforts can enhance protection.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- 1 Reduces Risk to Human Health
- 2 Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- 3 Supports municipal bylaws, making them less likely to be challenged
- 4 Ensures clean drinking water supplies for future generations
- 5 Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	NO	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Continue monitoring non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town "Aquifer Protection District" bylaw meets DEP's best efforts for wellhead protection. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	SOME	Hamilton has incorporated Wenham's Zone II in their Groundwater Protection Overlay District. Work with Danvers, Topsfield, and Beverly to include Wenham's Zone IIs in their wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	N/A	For guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	YES	Aim additional efforts at commercial, and municipal uses within the Zone II.

Plan for the Future:

One of the most effective means of protecting water supplies is planning, such as the adoption of local controls to protect watersheds and ground water. These controls may include health regulations, general ordinances, and zoning bylaws that prohibit potential sources of contamination from wellhead protection areas.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. These recommendations are only part of your ongoing local drinking water source protection.

Section 4: Additional Resources Available for Source Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The assessment and protection recommendations in this SWAP report are provided as a tool to spur community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. To aid in the protection of the wells, local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Funding Resources:

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing Water Supply Source Protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. For additional information, please refer to the program fact sheet from this year. Please note: each spring DEP posts a new Request for Response for the Grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm>.

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Section 5: Appendices

1. Protection Recommendations
2. Regulated Facilities within the Water Supply Protection Area
3. Additional Documents on Source Protection in Wenham



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
West Newbury Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	West Newbury Water Department
<i>PWS Address</i>	381 Main Street
<i>City/Town</i>	West Newbury, Massachusetts
<i>PWS ID Number</i>	3324000
<i>Local Contact</i>	Michael Gootée - Water Superintendent
<i>Phone Number</i>	978-363-1100 ext. #27

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

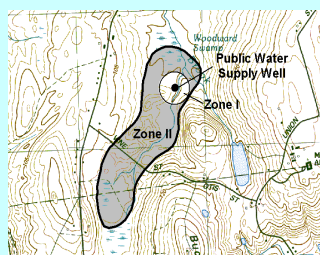
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Attachments

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Zone II #: 74

Susceptibility: Medium

Well Names	Source IDs
Driven & Horizontal Wellfield	3324000-01G

The wellfield for West Newbury Water Department is located on the South Side of Main Street (Route 113) and to the west of the Lower Artichoke Reservoir. The wellfield has a Zone I radius of 250 feet, which is measured from the outer most wells in the wellfield. The wellfield is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The DEP requires public water suppliers to monitor the quality of the water. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 2: Land Uses in the Protection Areas

The Zone II for West Newbury is a mixture of forest, pasture, water, wetlands, and urban openspace (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Use s and Protection Issues include:

1. Transportation Corridor
2. Comprehensive wellhead protection planning

The overall ranking of susceptibility to contamination for the system is medium, based on the presence of at least one medium threat land use within the water supply protection areas, as seen in Table 2.

1. Transportation Corridors - Route 113 runs through the Zone II just north of West Newbury's Driven & Horizontal Wellfield. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash in to catchbasins.

Transportation Corridor Recommendations:

- ✓ Identify stormwater drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge stormwater outside of the Zone II.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained.

- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

2. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan".
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21 (2). If there are no local controls or they do not meet the current regulations, adopt controls that meet 310 CMR 22.21(2). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floordrains, be sure to include floordrain controls that meet 310 CMR 22.21(2).

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. Refer to Appendix A for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

**Benefits
of Source Protection**

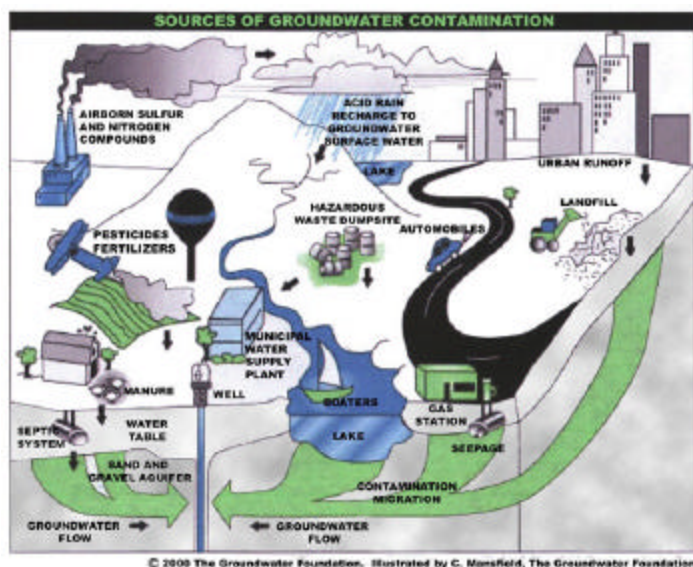
Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations



Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2.

West Newbury is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Applying for and receiving a DEP Wellhead Protection Grant for the purpose of improving storage and handling of potassium hydroxide at the wellfield pump station.
- Working with the Town to adopt a Groundwater Protection District bylaw.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Miscellaneous				
Aboveground Storage Tanks	3	M	74	Petroleum products, and hazardous materials: spills, leaks, or improper handling
Transportation Corridors	1	M	74	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling
Water Treatment	1	M	74	Treatment plant chemicals: spills, leaks, or improper handling or storage of chemicals and equipment maintenance materials
Water Supply Protection Area % that is Sewered = 0%				
Notes:				
1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.				
2. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.				
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites.				
THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.				

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead Protection Plan.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. The Department’s Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program.

Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection’s Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP’s Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	YES	Continue monitoring non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21 (2)?	NO	The Town of West Newbury's "Groundwater Protection District" bylaw does not meet the floor drain requirements. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	N/A	
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	NO	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	The town is encouraged to implement a program, and to include municipal facilities. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	YES	Aim additional efforts at agricultural, commercial, industrial and municipal uses.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Westford Water Department

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Westford Water Department
<i>PWS Address</i>	63 Forge Village Road
<i>City/Town</i>	Westford, Massachusetts
<i>PWS ID Number</i>	2330000
<i>Local Contact</i>	Warren Sweetser
<i>Phone Number</i>	(978) 692-5529

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate Best Management Practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

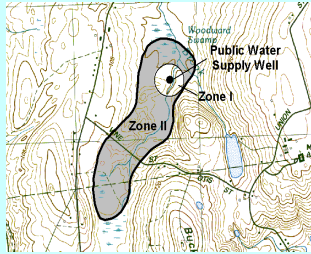
This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

Section 1: Description of the Water System

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone II #: 115

Susceptibility: Moderate

<i>Well Names</i>	<i>Source IDs</i>
Cote GPW	2330000-07G

Zone II #: 128

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Nutting Rd GPW	2330000-02G
Depot Rd GPW	2330000-03G

Zone II #: 278

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Fletcher Well	2330000-08G

Zone II #: 434

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Forge Village Wellfield 1.1	2330000-01G
Country Road GPW	2330000-04G
Forge Village Wellfield GPW #2	2330000-05G
Howard Road Wellfield 6.1	2330000-06G
Forge Village Wellfield 1.2	2330000-09G
Forge Village Wellfield 1.3	2330000-10G
Forge Village Wellfield 1.4	2330000-11G
Forge Village Wellfield 1.5	2330000-12G
Howard Road Wellfield 6.2	2330000-13G
Howard Road Wellfield 6.3	2330000-14G
Howard Road Wellfield 6.4	2330000-15G
Howard Road Wellfield 6.5	2330000-16G

The wells for the Westford Water Department are located in four Zone II largely on the western edge of the town. The Zone II #434 has a small portion that extends in to the town of Littleton. Each well has a Zone I of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map to view the boundaries of the Zone II.

Water from the wells is disinfected, has iron and manganese removed, is treated for corrosion control, and is fluoridated for dental health. For current information on monitoring results and treatment, please contact the Public

Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data are also available on the web at <http://www.epa.gov/safewater/ccr1.html>.

Section 2: Land Uses in the Protection Areas

The Zone II for Westford are a mixture of residential, wetland, and forested land uses, with small areas of commercial and light industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues include:

1. Zone I Protection
2. Residential land uses
3. Transportation corridors
4. Hazardous materials storage and use
5. Agricultural activities
6. Comprehensive wellhead protection planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Zone I Protection – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. The Zone Is for the wells are owned or controlled by the public water system. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non water supply activities such as homes and public roads. The following non water supply activities occur in the Zone Is of the system wells:

Well 04G - There is a local road that runs through the Zone I of the Country Road Gravel Pack Well.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

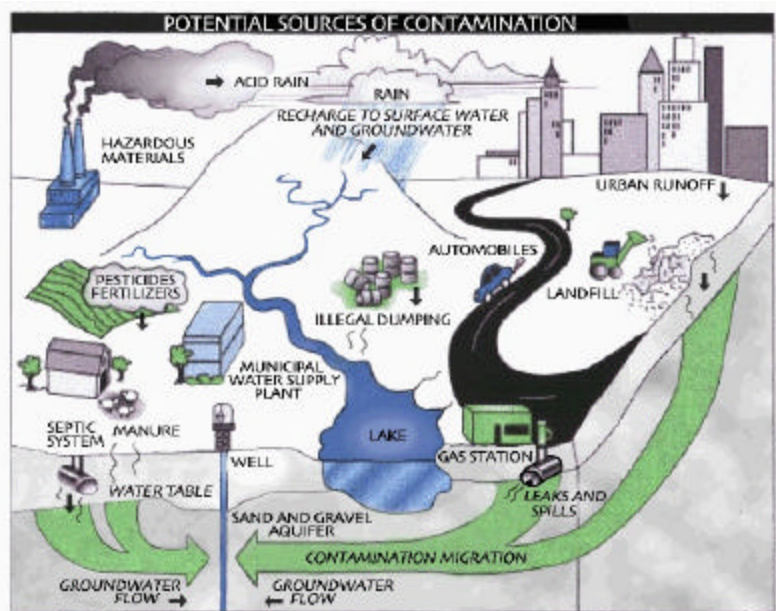
- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

Zone I Recommendations:

- ✓ To the extent possible, remove all non water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non water supply activities out of the Zone I.

2. Residential Land Uses – The most common land use throughout the Zone II is residential areas. None of the areas have public sewers, and so all use septic systems. If managed improperly, activities associated



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with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls. Visit DEP’s web site for additional information and assistance at <http://www.state.ma.us/dep/brp/wm/nonpoint.htm>.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

For More Information

Contact Josephine Yemoh-Ndi in DEP’s Worcester Office at (508) 849-4030 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

3. Transportation Corridors - Route 40 runs through the Zone II #115 and Route 225 runs through Zone II #434 and #278. Local roads are common throughout the Zone II. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash in to catchbasins.

Railroad tracks run through the southern edge of Zone II #128 and along the northern edge of Zone II #434. Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals.

(Continued on page 7)

Source Protection Decreases Risk

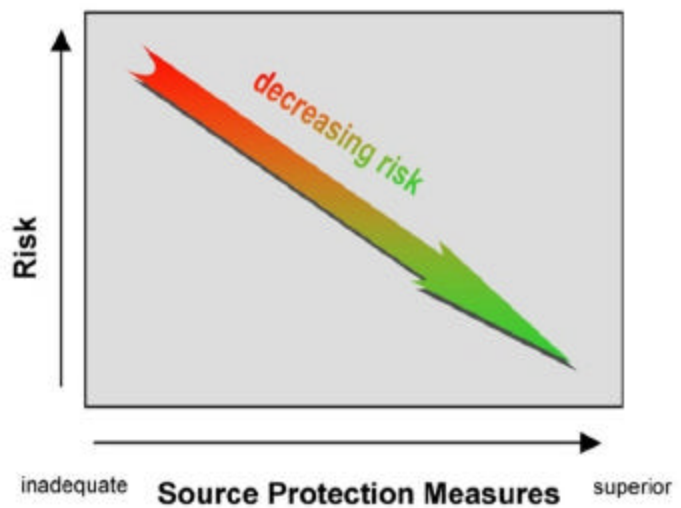


Figure 2: Risk of contamination decreases as source protection increases. This is true for public water systems of any susceptibility ranking, whether High, Moderate, or Low.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources*
Agricultural				
Livestock Operations	2	M	#434, #278	Manure (microbial contaminants): improper handling
Commercial				
Cemeteries	2	M	#115, #128	Over-application of pesticides: leaks, spills, improper handling; historic embalming fluids
Railroad Tracks And Yards	1	H	#434, #128	Herbicides: over-application or improper handling; fuel storage, transported chemicals, and maintenance chemicals: leaks or spills
Sand And Gravel Mining/ Washing	1	M	#115	Heavy equipment, fuel storage, clandestine dumping: spills or leaks
Industrial				
Foundries Or Metal Fabricators	1	H	#434	Solvents and other chemicals: spills, leaks, or improper handling or storage
Residential				
Fuel Oil Storage (at residences)	170+	M	All	Fuel oil: spills, leaks, or improper handling
Lawn Care / Gardening	450+	M	All	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	450+	M	All	Hazardous chemicals: microbial contaminants, and improper disposal

Table 2 Notes:

1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

* **THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

Table 2 Continued on Page 6

Table 2 (Continued): Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix A: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II #	Potential Contaminant Sources*
Miscellaneous				
Aboveground Storage Tanks	2	M	#434	Materials stored in tanks: spills, leaks, or improper handling
Aquatic Wildlife	4	L	All	Microbial contaminants
Fishing/Boating	4	L	All	Fuel and other chemical spills, microbial contaminants
Landfills and Dumps	1	H	#434	Seepage of leachate. Note: Landfill is now closed.
Schools, Colleges, and Universities	2	M	#434, #278	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Small Quantity Hazardous Waste Generators	1	M	#434, #278	Hazardous materials and waste: spills, leaks, or improper handling or storage
Stormwater Drains/ Retention Basins	5	L	#434, #278	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Tire Dumps	1	M	#115	Tires: improper handling or management
Transmission Line Rights-of-Way	1	L	#434, #278	Corridor maintenance pesticides: over-application or improper handling; construction
Transportation Corridors	2	M	#434, #278, #115	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling
Underground Storage Tanks	3	H	#434, #278	Stored materials: spills, leaks, or improper handling
Very Small Quantity Hazardous Waste Generator	1	L	#434, #278	Hazardous materials and waste: spills, leaks, or improper handling or storage
Waste Transfer/Recycling Station	1	M	#434, #278	Water contacting waste materials: improper management, seepage, and runoff
Wastewater Treatment Plant/ Collection Facility/ Lagoon	1	M	#434, #278	Treatment chemicals or equipment maintenance materials: improper handling or storage; wastewater: improper management

Transportation Corridor Recommendations:

- ✓ Identify stormwater drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge stormwater outside of the Zone II.
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

4. Hazardous Materials Storage and Use – One percent of the land area within the Zone II are commercial or industrial land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet “Businesses Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP’s for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floordrain requirements. See

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased groundwater monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

brochure “Industrial Floor Drains” for more information.



5. Agricultural Activities – There is pastureland and small horse farms within the Zone II. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If not contained or applied properly, animal waste from barnyards, manure pits and field application are potential sources of contamination to ground and surface water.

Agricultural Activities Recommendation:

- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service farm plan to protect water supplies.

6. Protection Planning – Currently, the Town has water supply protection controls for Zone II #128, #115, and #278 that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). The controls were revised in 2002 to include Zone II #434, however DEP has not reviewed the controls to verify that they meet 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan

(Continued on page 9)

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Continue monitoring roads and other non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	YES	The Town "Aquifer Protection District" bylaw meets DEP's requirements for wellhead protection, though a revised aquifer protection district map is not on file at DEP. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	NO	Work with Littleton to include Zone II areas in their wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	YES	Update, maintain, and implement your wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	YES	Include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	YES	Aim additional efforts at commercial, industrial and residential uses within the Zone II.

(Continued from page 7)

coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Update, maintain, and implement your Wellhead Protection Plan. Refer your protection team to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan".
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21 (2). If there are no local controls for Zone II #434, or they do not meet the current regulations, adopt controls that meet 310 CMR 22.21(2). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the Zone II include a metal fabricator and schools. Refer to Table 2 for more information about these land uses.

Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Working with the Highway Department to ensure that highway runoff is directed away from the Zone II.
- Acquiring land to protect the wells within Zone II #434.
- Working with schools to improve management of athletic field runoff.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Work with farmers in your protection areas to make them aware of your water

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

- supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Develop and implement a Wellhead Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3 and the Key Issues above.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Additional Documents on Source Protection



Source Water Assessment Program (SWAP) Report For Vine Brook Estates

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource
Protection,
Drinking Water Program

Date Prepared:
January 26, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Vine Brook Estate
<i>PWS Address</i>	11 Vine Brook Road
<i>City/Town</i>	Westford, Massachusetts
<i>PWS ID Number</i>	2330014
<i>Local Contact</i>	Deborah Bray
<i>Phone Number</i>	(978) 486-0473

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2330014	250	2512	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

Water supply for Vine Brook Estates comes from a tubular wellfield that consists of seven 8-inch diameter steel well casings with stainless steel screens driven to an average depth of 26 feet. The wellfield has a Zone I of 250 feet and an Interim Wellhead Protection Area (IWPA) of 2,512 feet. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA. The well serving the facility has potassium hydroxide added for corrosion control. For current information on monitoring results and treatment and a copy of the most recent Consumer Confidence Report, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone Is;**
2. **Aboveground storage tanks;**
3. **Septic systems; and**
4. **Landscaping and lawn care.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of low to moderate threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone I**– Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone I contains the access dirt road to the wells and pump house, and recreational activities. The public water supplier owns and controls all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
 - ✓ Keep non-water supply activities out of the Zone I.
2. **Aboveground Storage Tank (AST)** – There are AST with fuel oil located in the basement of the homes in the IWPA. If managed improperly, Aboveground Storage Tanks can be a potential contaminant source due to leaks or spills of the chemicals they store.
- #### Recommendations:
- ✓ Aboveground storage tanks in your IWPA should be located in an impermeable area large enough to hold 110% of the complete liquid volume, should a spill occur.
 - ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices. Any modifications to the AST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Access road & recreational activity	Yes	Yes	Low	
Fuel Storage Above Ground	No	Yes	Moderate	Tanks are in the basement of the residential homes
Residential Septic Systems	No	Yes	Moderate	See septic system brochure
Residential Landscaping and lawn care & gardening	No	Yes	Moderate	Fertilizer and pesticide use

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

requirements. Consult with the local fire department for any additional local code requirements regarding ASTs.

- 3. Septic systems** – There are a few septic systems located within the IWPA of the well. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

Recommendation:

- ✓ Encourage participation in the Town of Westford Household Hazardous Waste collection to discard of spent chemicals.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

- 4. Residential landscaping, lawn care and gardening** - Fertilizer is applied to the lawn that is located within the IWPA. Fertilizers and pesticides, if improperly applied or stored, can be potential sources of contamination to the water supply.

Recommendations:

- ✓ Use best management practices when applying fertilizer in the IWPA.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Vine Brook Estates should review and adopt the key recommendations above and the following:

Training and Education:

- ✓ Instruct residents on proper hazardous material use, disposal, emergency response, and best management practices;
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/brp/dws/dwspubs.htm
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on Vine Brook Estates' property.

Planning:

- ✓ Work with local officials in Westford to include Vine Brook Estates' IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.

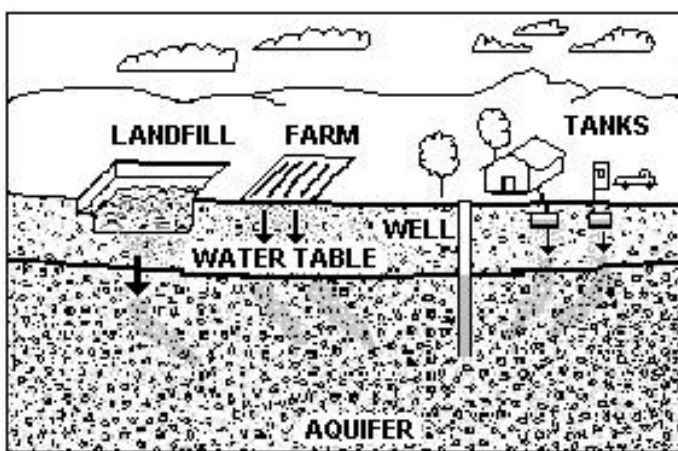


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at (508) 792-7650 x 5030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Source Protection Sign Order Form

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been provided to the public water supplier, town boards, and the local media.



Source Water Assessment Program (SWAP) Report For Haystack Estates

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
July 30, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Haystack Estates
<i>PWS Address</i>	10 Groton Road
<i>City/Town</i>	Westford, Massachusetts
<i>PWS ID Number</i>	2330019
<i>Local Contact</i>	Bernard Rousseau
<i>Phone Number</i>	(603) 598-5316

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2330019-01G	166	461	Moderate
Well #2	2330019-02G	166	461	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

Haystack Estates gets its water from two bedrock wells located in the woods west of the complex. Each well has a Zone I of 166 feet and an Interim Wellhead Protection Area (IWPA) of 461 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

The water is treated for radon removal by packed tower aeration. The water is chlorinated before it enters the aeration column, and it is chlorinated in the storage tank. The water is also treated for iron and manganese removal by sequestration and corrosion control by the addition of polyphosphate. For current information on monitoring results and treatment and a copy of the most recent Consumer Confidence Report, please contact the Public Water System contact person listed above in Table 1. Drinking water monitoring reporting data is also available on the available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone Is;**
2. **Septic system; and**
3. **Aquatic wildlife.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of only low and moderate threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone Is** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone I contains buildings and parking areas. The public water supplier does not own and/or control all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- V Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
 - V Do not use road salt within the Zone I.
2. **Septic system** – The septic system is located within the IWPA. The septic system is pumped annually. If a septic system fails or is not properly maintained it could be a

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Parking lot, driveways & roads	Both wells	Both wells	Moderate	Limit road salt usage and provide drainage away from wells
Septic System	No	Well #3	Moderate	See septic systems brochure in the appendix
Aquatic wildlife	No	Both wells	Low	
Structures	All Wells	All Wells	-	Non-water supply structures in Zone I

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

Recommendations:

- ✓ Do not pour hazardous materials down drains or toilets.
- ✓ Avoid septic tank cleaners, especially those with acids and solvents.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.

3. Aquatic wildlife -- A stream is located within the IWPA. Duck and other wildlife waste in and around the stream is a potential source of contamination to the water supply.

Recommendation:

- ✓ Discourage wildlife by prohibiting the feeding of ducks or other wildlife.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Haystack Estates should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Consider well re location if Zone I threats cannot be mitigated.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.

Training and Education:

- ✓ Train residents on proper hazardous material use, disposal, emergency response, and best management practices; include groundskeepers and certified.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/bwp/dhm/dhmpubs.

Planning:

- ✓ Work with local officials in Westford to include the Haystack Estates' IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

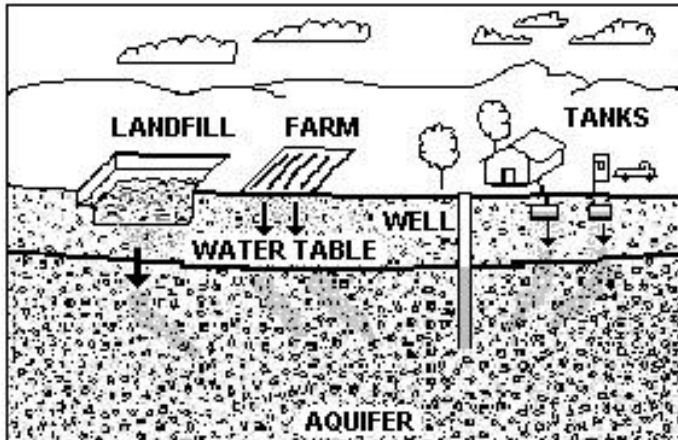


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Copies of this assessment have been provided to the public water supplier, town boards, and the local media.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- **Map of the Public Water Supply (PWS) Protection Area.**
- **Recommended Source Protection Measures Factsheet**
- **Your Septic System Brochure**

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/ including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Source Water Assessment Program (SWAP) Report For The Child Care Center



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
November 13, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	The Child Care Center
<i>PWS Address</i>	100 Littleton Road
<i>City/Town</i>	Westford
<i>PWS ID Number</i>	2330020
<i>Local Contact</i>	Elizabeth Coughlin
<i>Phone Number</i>	(978) 692-4711

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2330020-01G	151	449	Moderate

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The well for the facility is located about 40 feet behind the on-site building. The well has a Zone I of 151 feet and an Interim Wellhead Protection Area (IWPA) of 449 feet. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

The well serving the facility has no treatment at this time. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate activities in Zone I;**
2. **Athletic Field; and**
3. **Septic system.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of moderate threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone I** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone I contains the on-site building, playground, and parking areas. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Keep non-water supply activities out of the Zone Is.
- ✓ Remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ If the facility intends to continue utilizing the structures, playground, and parking areas in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.
- ✓ Do not use road salt within the Zone I.

2. **Athletic field** – A portion of the athletic field belonging to the abutting school lies within the IWPA of the water supply. If improperly applied stored, fertilizer can be a potential source of contamination to the water supply.

Recommendations:

- V Do not use fertilizers or pesticides in the Zone I.
- V Use best management practices when applying fertilizer in the IWPA.

3. **Septic system** – The well is located about 110 feet from the septic system and leachfield. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

Table 2: Table of Activities within the Water Supply Protection Areas

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Daycare	Parking lot, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
	Athletic Field	No	Yes	Moderate	Fertilizer and pesticide use
	Septic System	No	Yes	Moderate	See septic systems brochure in the attachments
	Structures	Yes	Yes	Moderate	Non-water supply structures in Zone I

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Recommendations:

- ✓ The daycare should be instructed to participate with the Town of Westford in its household hazardous waste collection to discard of spent chemicals.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.
- ✓ The daycare staff should be instructed on not to dispose of spent household cleaning chemicals into the septic system.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Westford Child Care Center, Inc. should review and adopt the following recommendations at the facility:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.

Training and Education:

- ✓ Instruct staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers and certified operator.
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.

- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.

Planning:

- ✓ Work with local officials in Westford to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

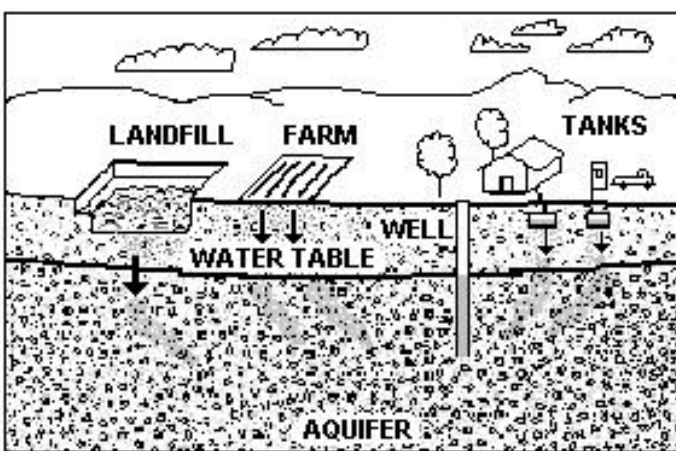


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:
www.state.ma.us/dep/brp/dws.

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix



**Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
For
65 & 63 Power Road**

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
March 26, 2004

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	65 & 63 Power Road
<i>PWS Address</i>	65 & 63 Power Road
<i>City/Town</i>	Westford, Massachusetts
<i>PWS ID Number</i>	2330021
<i>Local Contact</i>	Ms. Deborah Bray
<i>Phone Number</i>	(978) 486-1008

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2330021-01D	100	405	High

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The well for 65 & 63 Power Road is located between the two buildings (63 & 65 Power Road), approximately 40 feet from 65 Power Road and approximately 35-feet from 63 Power Road. The well has a Zone I of 100 feet and an Interim Wellhead Protection Area (IWPA) of 450 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

The well serving the facility has no treatment at this time. The DEP requires public water suppliers to monitor the quality of the water. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone I;**
2. **Hazardous Waste Storage;**
3. **Machine/Metalworking Shop;**
4. **Lawncare/Gardening;**
5. **Septic System; and**
6. **Very Small Quantity Hazardous Waste Generator.**

The overall ranking of susceptibility to contamination for the well is high, based on the presence of at least one high threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone I** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone I contain the buildings, road, and parking areas. The public water supplier owns and controls all land encompassed by the Zone 1. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Do not use fertilizers or road salt within the Zone I.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Storage & use hazardous materials	Yes	Yes	High	Solvents used in the Machine Shop
Parking lot, driveways & road	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Machine/Metal Working Shop	Yes	Yes	High	Solvents used in the Machine Shop
Septic System	No	Yes	Moderate	See septic systems brochure in the appendix
Industrial Park	Yes	Yes	High	Hazardous Chemical storage & use
Very Small Quantity Hazardous Waste generator	Yes	Yes	Low	See VSQG Broshure in the Appendix
Lawncare/Gardening	Yes	Yes	Moderate	Fertilizer storage & Use
Structures	Yes	Yes	-	Non-water supply structures in Zone I

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

2. **Septic system** – The septic system belonging to a residents are is located within the IWPA. If improperly used or maintained, septic systems are a potential of source contamination in groundwater and the water supply.

Recommendations:

- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.
- ✓ Residents and maintenance staff should be trained on proper disposal of spent household chemicals and encouraged to participate in local Household Hazardous waste collections.

3. **Landscaping and lawn care/gardening** - Fertilizer is applied to the lawn that is located within the IWPA. Fertilizer and pesticides may also be used by the residence who lie within the IWPA of the water supply. Fertilizers and pesticides, if improperly applied or stored, can be potential sources of contamination to the water supply.

Recommendations:

- ✓ Do not use fertilizers or pesticides in the Zone I.
- ✓ Use best management practices when applying fertilizer in the IWPA.

4. **Machine/Metal Working Shop/Hazardous material storage & use** – As a Machine/Metal Working shop, hazardous materials used in the daily activities are also stored at the site. In case of spills, leaks and improper handling the chemicals can potentially contaminate the water supply.

Recommendation:

- ✓ Use Best Management Practices (BMPs) to ensure the proper storage, handling, and disposal of on-site chemicals.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

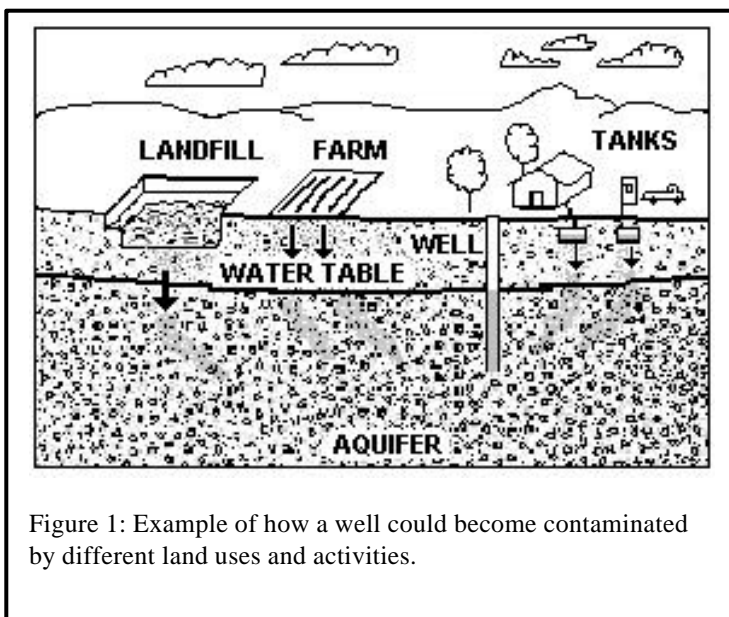


Figure 1: Example of how a well could become contaminated by different land uses and activities.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. The key recommendations above and the following should be reviewed and adopted:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Since the facility intends to continue utilizing the buildings which lie within the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at (508) 792-7650 x 4030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier and town boards.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator. Post labels as appropriate on raw materials and hazardous waste.
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, refer to <http://www.state.ma.us/dep/bwp/dhm/files/sqgsum.pdf> for the Requirements for Small Quantity Generators.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.

Planning:

- ✓ Work with local officials in Westford to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Source Protection Sign Order Form



**Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
For
59 Power Road (TRI PYRAMID)**

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
March 26, 2004

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	59 Power Road (TRI PYRAMID)
<i>PWS Address</i>	59 Power Road
<i>City/Town</i>	Westford, Massachusetts
<i>PWS ID Number</i>	2330022
<i>Local Contact</i>	Ms. Deborah Bray
<i>Phone Number</i>	(978) 486-1008

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2330022-01G	100	402	High

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The well for the facility is located to the northwest of the on-site building, approximately sixty feet from the building. The well has a Zone I of 100 feet and an Interim Wellhead Protection Area (IWPA) of 402 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

The well serving the facility has no treatment at this time. The DEP requires public water suppliers to monitor the quality of the water. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone I;**
2. **Septic System;**
3. **Machine/Metal Working Shop;**
4. **Very Small Quantity Generator of Hazardous Waste; and**
5. **Landscaping, Lawncare/Gardening.**

The overall ranking of susceptibility to contamination for the well is high, based on the presence of at least one high threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone I** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone I. The facility's Zone I contains the on-site building, road, and parking areas. The public water supplier owns and controls all land encompassed by the Zone 1. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
 - ✓ Do not use fertilizers or road salt within the Zone I.
2. **Septic system** – The septic system belonging to a resident is located within the IWPA. If improperly used or maintained, septic systems are a potential of source contamination in groundwater and the water supply.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Storage & use of hazardous materials	Yes	Yes	High	Materials in photographic, art, science, and vocational classrooms
Parking lot, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Septic System	No	Yes	Moderate	See septic systems brochure in the appendix
Machine/Metal Working Shop	Yes	Yes	High	Solvents used in the Machine Shop
Very Small Quantity Hazardous Waste generator	Yes	Yes	Low	See VSQG Brochure in the Appendix
Landscaping, Lawncare/Gardening	Yes	Yes	Moderate	Fertilizer storage & Use
Structures	Yes	Yes	-	Non-water supply structures in Zone I

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Recommendations:

- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.
- ✓ Residents and maintenance staff should be trained on proper disposal of spent household chemicals and encouraged to participate in local Household Hazardous waste collections.

3. **Landscaping and lawn care/gardening** - Fertilizer is applied to the lawn that is located within the IWPA. Fertilizer and pesticides may also be used by the residence who lie within the IWPA of the water supply. Fertilizers and pesticides, if improperly applied or stored, can be potential sources of contamination to the water supply.

Recommendations:

- ✓ Do not use fertilizers or pesticides in the Zone I.
- ✓ Use best management practices when applying fertilizer in the IWPA.

4. **Machine/Metal Working Shop/Hazardous material storage & use** – As a Machine/Metal Working shop, hazardous materials used in the daily activities are also stored on-site. In case of spills, leaks and improper handling, chemicals can potentially contaminate the water supply.

Recommendation:

- ✓ Use Best Management Practices (BMPs) to ensure the proper storage, handling, and disposal of on-site chemicals.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. TRI PYRAMID should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Since TRI PYRAMID intends to continue utilizing the structures in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator.
- ✓ Post drinking water protection area signs at key visible location.

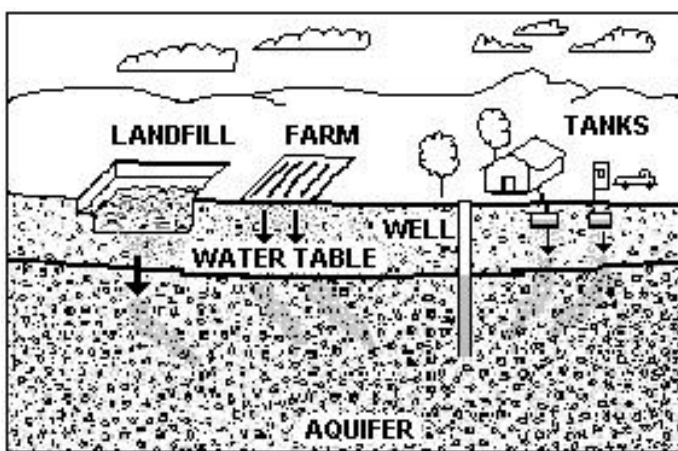


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at (508) 792-7650 x 4030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier and town boards.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, refer to <http://www.state.ma.us/dep/bwp/dhm/files/sqgsum.pdf> for the Requirements for Small Quantity Generators.

Planning:

- ✓ Work with local officials in the Town of Westford to include the TRI PYRAMID IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Source Protection Sign Order Form



**Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
For
45 Power Road (IDEAL BLOCK)**

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, established under the federal Safe Drinking Water Act, requires every state to:

- ? Inventory land uses within the recharge areas of all public water supply sources;
- ? Assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
March 26, 2003

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	45 Power Road
<i>PWS Address</i>	45 Power Road
<i>City/Town</i>	Westford, Massachusetts
<i>PWS ID Number</i>	2330023
<i>Local Contact</i>	Ms. Deborah Bray
<i>Phone Number</i>	(978) 486-1008

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2330023-01G	100		Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The well for the facility is located in a flowerbed to the southwest of the on-site building, approximately ninety feet from the building. The building is used for commercial purposes. The well has a Zone I of 100 feet and an Interim Wellhead Protection Area (IWPA) of 430 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map of the Zone I and IWPA.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

The well serving the facility has no treatment at this time. The DEP requires public water suppliers to monitor the quality of the water. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1. Drinking water monitoring reporting data is also available on the web via EPA's Envirofacts website at http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Inappropriate Activities in Zone I;**
2. **Septic System within the IWPA;**
3. **Landscaping and Lawncare; and**
4. **Sand and Gravel Mining.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of only moderate threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone I** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone I. The facility's Zone I contains buildings, roads and parking areas. The public water supplier owns and controls all land encompassed by the Zone I. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

2. **Septic system** – The septic system belonging to a resident is located within the and IWPA. If improperly used or maintained, septic systems are a potential of source contamination in groundwater and the water supply.

Recommendations:

- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Parking lot, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Septic System	No	Yes	Moderate	See septic systems brochure in the appendix
Landscaping & Lawncare	Yes	Yes	Moderate	Fertilizer storage & Use
Sand and gravel mining	No	Yes	Moderate	
Structures	Yes	Yes	-	Non-water supply structures in Zone I

* -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

- ✓ Maintenance staff should be trained on proper disposal of chemicals.

3. Landscaping and lawn care - Fertilizer is applied to the lawn that is located within the IWPA. Fertilizer and pesticides may also be used by the residence who lie within the IWPA of the water supply. Fertilizers and pesticides, if improperly applied or stored, can be potential sources of contamination to the water supply.

Recommendations:

- ✓ Do not use fertilizers or pesticides in the Zone I.
- ✓ Use best management practices when applying fertilizer in the IWPA.

4. Sand and gravel mining – A sand and gravel mining operation is located within the IWPA. Sand and gravel mining is a potential source of contamination due to the possibility of spills or leaks from heavy equipment, fuel storage, and clandestine dumping.

Recommendations:

- ✓ Use Best Management Practices for storage, use, and disposal of hazardous materials such as fuel.
- ✓ Inspect the IWPA for signs of clandestine dumping on a regular basis.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Nardone Industrial Properties should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.

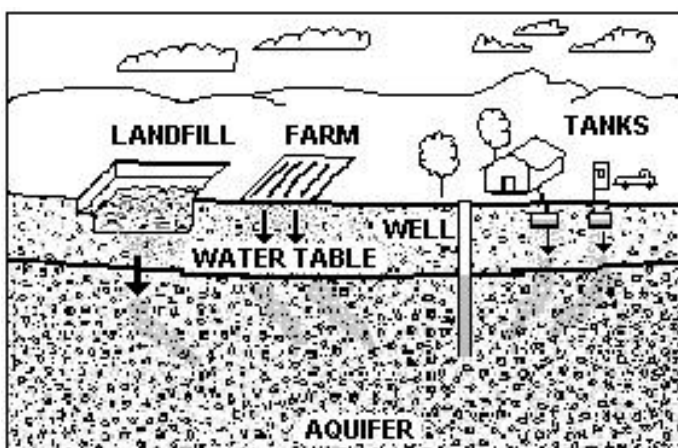


Figure 1: Example of how a well could become contaminated by different land uses and activities.

- ✓ Since Nardone Industrial Properties intends to continue utilizing the structures in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at (508) 792-7650 x 4030 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at:

www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws/, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier and town boards.

Planning:

- ✓ Work with local officials in the Town of Westford to include the facility IWPA in Aquifer Protection District Bylaws and to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet

Source Water Assessment Program (SWAP) Report For Campion Residence & Renewal Center



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
February 8, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Campion Residence & Renewal Center
<i>PWS Address</i>	319 Concord Road
<i>City/Town</i>	Weston, Massachusetts
<i>PWS ID Number</i>	3333001
<i>Local Contact</i>	William Hays - Certified Operator
<i>Phone Number</i>	(781) 894-0751

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	3333001-01G	264	674	High

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- ? inventory land uses within the recharge areas of all public water supply sources;
- ? assess the susceptibility of drinking water sources to contamination from these land uses; and
- ? publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

INTRODUCTION

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential contaminant sources, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:

1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. DESCRIPTION OF THE WATER SYSTEM

The Well

The well for the Campion Residence & Renewal Center is located approximately 500 feet to the southeast of the center of the main parking lot. Well #1 has a Zone I radius of 264 feet and an Interim Wellhead Protection Area (IWPA) radius of 674 feet. The well is located in a sand and gravel aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map for the well location, Zone I and IWPA. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by the water supplier and limited to water supply activities.

- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

2. DISCUSSION OF LAND USES IN THE PROTECTION AREAS

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

Inappropriate activities in Zone I

The overall ranking of susceptibility to contamination for the well is **moderate**, based on the presence of at least one **moderate** threat land use or activity in the IWPA, as seen in Table 2.

- Zone Is** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The Campion Residence & Renewal Center's Zone I contains a trail that is used for equine recreation. Horse manure and urine can be potential sources of microbial contamination if improperly managed.

The public water supplier does not own and/or control all land encompassed by the Zone 1. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- Incorporate best management practices such as vegetated buffers to reduce the risk of impaired water quality from non-water supply activities.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. PROTECTION RECOMMENDATIONS

Implementing protection measures and best management practices (BMPs) will reduce the Campion Residence & Renewal Center's well's susceptibility to contamination. The Campion Center is commended for posting the Zone I with Drinking Water Protection Area signs. The Campion Center should review and adopt the key recommendations above and the following:

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Passive Equestrian Recreation	Yes	Yes	Moderate	Fact sheets were provided by DEP on best management practices for horse related activities
Septic System	No	Yes	Moderate	See septic systems brochure attached
Lawn Care/Gardening	No	Yes	Moderate	Fertilizer and pesticide use – see attachment

For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use /Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone I I. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Work with horse owners in developing best management practices related to passive equestrian activities in the Zone I.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Continue the wise practice of prohibiting public access to the well and pumphouse by locking facilities, and posting signs.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, check any above ground tanks for leaks, etc.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operators, and food preparation staff.
- ✓ Post drinking water protection area signs at key visibility locations.
- ✓ Work with your community to ensure that stormwater runoff is directed away from the well and is treated according to DEP guidance.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/brp/dws/dwspubs.html
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on Campion Residence & Renewal Center's property.
- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. Instead, in areas using hazardous materials, discharge drains to a tight tank.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to attachments for more information regarding septic systems.
- ✓ For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm.

- 3 Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.

Planning:

- ✓ Work with local officials in Weston in creating a Groundwater Protection District Bylaw to meet current DEP regulations, and include the Campion Residence & Renewal Center's IWPA to assist you in improving protection.
- ✓ Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

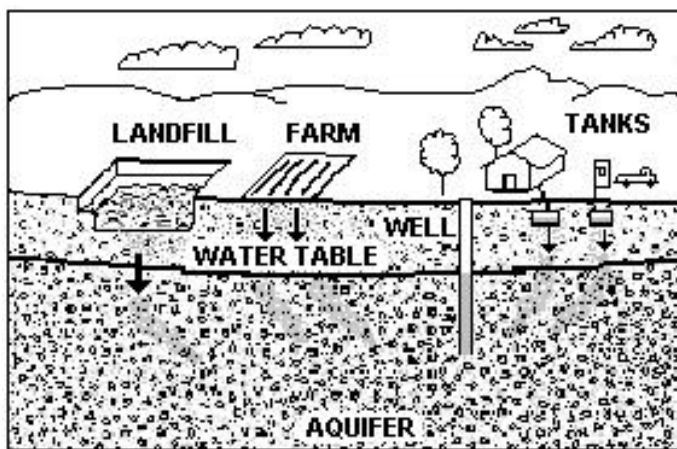


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:
www.state.ma.us/dep/brp/dws.

Copies of this assessment have been provided to the water department, town boards, the town library and the local media.

Funding:

The Department's Wellhead Grant Protection Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet from last year (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. ATTACHMENTS

- Map of the Public Water Supply (PWS) Protection Area.
- Wellhead Protection Tips For Small Public Water Systems
- A Reference Guide for Homeowners: Your Septic System
- Protecting Groundwater from Pesticides
- Healthy Lawn/Healthy Environment
- Recommended Source Protection Measures Factsheet
- **Industrial Floor Drains Brochure**
- **Wellhead Protection Grant Program Fact Sheet**
- **Source Protection Sign Order Form**
- DEP Publications: Hazardous Waste Management

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Weymouth Water Division

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Weymouth Water Division
<i>PWS Address</i>	120 Winter Street
<i>City/Town</i>	Weymouth, Massachusetts
<i>PWS ID Number</i>	3336000
<i>Local Contact</i>	Bradley Hayes
<i>Phone Number</i>	(781) 337-5100
<i>Web Address</i>	www.weymouth.ma.us

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

Groundwater Sources

Zone II #: 321

Source Name	Source ID#	Susceptibility
Circuit Ave. Well	3336000-01G	High
Main St. Well	3336000-02G	High
Libbey Park Well	3336000-03G	High
Winter St. Well #1	3206000-04G	High
Winter St. Well #2	3206000-05G	High

Surface Water Sources

Source Name	Source ID#	Susceptibility
Great Pond	3336000-01S	Moderate
Old Swamp River/South Cove	3336000-02S	High

The wells for the Weymouth Water Division are located within a single water supply protection area all within the Town of Weymouth. Each well has a Zone I radius of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barrier (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

The reservoirs for the Weymouth Water Division are located within two separate water supply protection areas, with a portion of the Great Pond water supply protection area extending into the towns of Abington, Braintree, and Holbrook, and a portion of the Old Swamp River/South Cove water supply protection area extending into the towns of Abington, Braintree, Hingham, and Rockland.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone II and Zone Cs for Weymouth are primarily a mixture of forest, and residential, with a small portion consisting of commercial and industrial land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Activities in Zone A
3. Hazardous Materials Storage and Use
4. Transportation Corridor
5. Department of Public Works facility
6. Residential Land Uses
7. Federal Superfund Site and Oil or Hazardous Material Contamination Sites
8. Comprehensive Wellhead Protection Planning

The ranking of susceptibility to contamination for the Zone II of the Circuit Avenue Well, Main Street Well, Libbey Park Well, Winter Street Well #1, and Winter St. Well #2 is high, based on the presence of at least one high threat land use within the water supply protection area, as seen in Table 2; the ranking of susceptibility to contamination for the Great Pond Zone Cs is moderate, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2; and, the ranking of susceptibility to contamination for Old Swamp River/South Cove is high, based on high threat land uses within the water supply protection area.

1. Activities in Zone I – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The following non-water supply activities occur in the Zone Is of the system wells:

Circuit Avenue Well - There are six homes, with all being on municipal sewer, and local roads in the Zone I.

Winter Street Well #1 - There is a portion of a house lot in the Zone I.

Winter Street Well #2 - There is a small portion of the DPW parking lot, a section of a commercial building with a known oil or hazardous material contamination site, and a portion of Winter Street in the Zone I.

Main Street Well - Route 3 (including an exit cloverleaf), and Route 18 intersect a significant portion of the Zone I.

Zone I Recommendations:

- ✓ To the extent possible, continue on-going efforts to remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Continue to use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I. In addition, continue to provide education materials to homeowners within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ Agreement Options - Until land is available, continue to pursue options for a *Memorandum of Understanding and Right of First Refusal*.

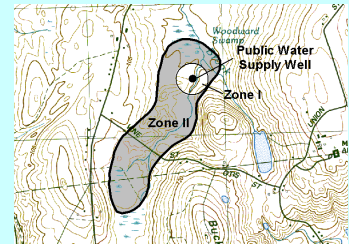
Memorandum of Understanding (MOU) is an agreement between the landowner and public water supplier in which the landowner agrees not to engage in specific threatening activities. The MOU should be specific to the land use or activity. For instance, if the land is residential with a septic system the owner could agree not to place chemicals, petroleum products, or other hazardous or toxic substances, including septic system cleaners into the septic system, and that the system will be pumped at a specific frequency. The application of lawn care chemicals could also be restricted. Understanding how and activity threatens drinking water quality is an important component of developing an effective MOU.

Right of First Refusal is a legal document that gives the water supplier first chance to purchase land when it becomes available. See *Right of First Refusal* in Appendices.

2. Activities in Zone A - Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; uncontained storage of fertilizers, manure, domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and un-permitted and unauthorized activities.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.

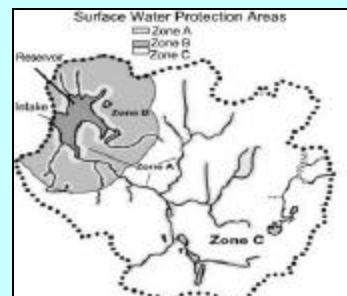


What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



Wild animals, farm animals, and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. The following non-water supply activities occur in the Zone A of the system's reservoirs:

Great Pond - Numerous homes exist throughout the Zone A of the reservoir and its tributaries, some of which are on private septic systems; local roads run throughout the Zone A of the reservoir and its tributaries, with Route 3 and Route 18 crossing sections of the northern tributary; and, there is a small amount of commercial activity occurring in the Zone A of the northern tributary to the reservoir.

South Cove - There are numerous homes, some of which are on private septic systems throughout the Zone A of the reservoir and tributaries to the reservoir; four underground storage tanks are in the Zone A of the reservoir and its tributaries; and, Route 53, Route 3, Route 18, and local roads run throughout the Zone A of the reservoir and tributaries;

Zone A Recommendations:

- ✓ To the extent possible, continue on-going efforts to remove all non-water supply activities from the Zone As to comply with DEP's Zone A requirements.

- ✓ Continue to use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ To the extent possible, continue to keep any new prohibited activities out of the Zone A.

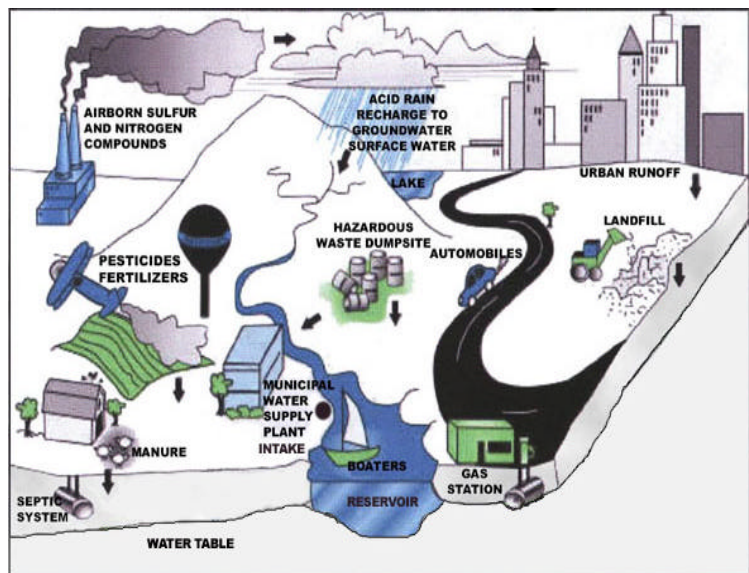
3. Hazardous Materials Storage and Use –

Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Continue to educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP's for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil.

(Continued on page 7)



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Figure 1: Sample watershed with examples of potential sources of contamination

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II Number	Zone C Source ID	Potential Contaminant Sources*
Commercial					
Gas Stations	9	H		01S, 02S	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Cemeteries	1	M		01S	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids
Funeral Homes	1	L		02S	Spills, leaks, or improper handling of hazardous chemicals
Medical Facilities	2	M		02S	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes
Railroad Tracks and Yards	2	H		02S	Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Industrial					
Fuel Oil Distributors	1	H		02S	Spills, leaks, or improper handling or storage of fuel oil
Industry/Industrial Parks	2	H	321	02S	Spills, leaks, or improper handling or storage of industrial chemicals and metals
Residential					
Fuel Oil Storage (at residences)	Numerous	M	321	01S, 02S	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	Numerous	M	321	01S, 02S	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	Numerous	M	321	01S, 02S	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous					
Aboveground Storage Tanks	6	M		01S, 02S	Spills, leaks, or improper handling of materials stored in tanks
Fishing/Boating	Numerous	L		02S	Fuel and other chemical spills, microbial contaminants
Large Quantity Hazardous Waste Generators	4	H		02S	Spills, leaks, or improper handling or storage of hazardous materials and waste

Land Uses	Quantity	Threat	Zone II Number	Zone C Source ID	Potential Contaminant Sources*
Miscellaneous					
Military Facilities (Past And Present) Type: <u>Naval Air</u>	1	H		02S	Spills, leaks, or improper handling or storage of pesticides and herbicides, fuel, chemicals and other materials; may include ordnance or waste landfill/ dump sites
Oil or Hazardous Material Sites	15	--	321	01S, 02S	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Road And Maintenance Depots	1	M	321	02S	Spills, leaks, or improper handling or storage of deicing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	5	M	321	01S, 02S	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small quantity hazardous waste generators	18	M	321	02S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Multiple	L	321	01S, 02S	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Superfund Sites	1	H		02S	Spills, leaks, or improper handling or storage of oil or hazardous materials and waste
Transmission Line Rights-of-Way Type: <u>electric</u>	2	L		01S, 02S	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	2	M	321	02S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	42	H	321	01S, 02S	Spills, leaks, or improper handling of stored materials
Very Small Quantity Hazardous Waste Generator	3	L	321	02S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Water Treatment Sludge Lagoon	4	M		01S	Improper management of sludge and wastewater
<p>Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <ul style="list-style-type: none"> THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater. 					

Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.

- ✓ Continue to enforcement of existing Hazardous Materials Storage and Use Ordinance.
- ✓ Continue to educate local businesses on Massachusetts floordrain requirements. See brochure “Industrial Floor Drains” for more information.

4. Transportation Corridors - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash in to catch basins.

Transportation Corridor Recommendations:

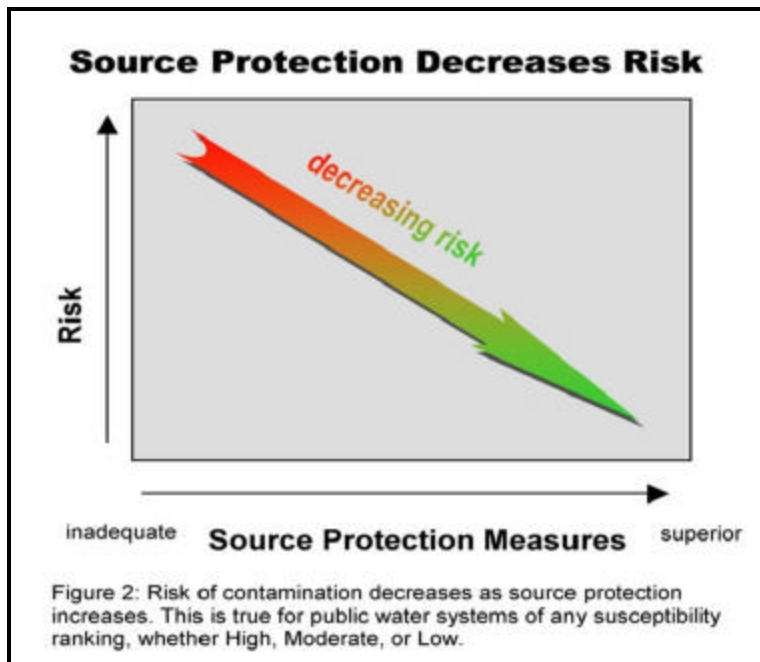
- ✓ Identify stormwater drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge stormwater outside of the Zone II and Zone Cs.

- ✓ Continue to work with the Town DPW and State to inspect, maintain, and clean catch basins on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Continue to work with the Town DPW and State emergency response teams to ensure that any spills within the Zone II, Zone A and Zone C can be effectively contained.
- ✓ After identifying and mapping stormdrains as part of the EPA Phase II Stormwater Rule, review the maps with emergency response teams.

5. Department of Public Works Facility - The potential for ground water contamination in municipal facilities is related to accidental dumps, accidental spills, and vehicle washing operations, or from wastewater treatment or left over product. Waste management and product storage processes pose the most prevalent threats to ground water, and a wide variety of potentially harmful constituents are involved in release incidents.

Department of Public Works Facility Recommendations:

- ✓ **Best Management Practices** - The New England Environmental Assistance Team provides municipalities in New England with information on how to comply with environmental requirements, and how to prevent pollution. For more information about this EPA sponsored program visit their website at <http://www.epa.gov/region1/steward/neeat/muni/index.html>.



Encourage the Department of Public Works to develop best management practices to insure proper salt storage, proper maintenance of facilities and good housekeeping practices.

✓ **Fuel Dispensing Area**

- Continue to maintain fuel-dispensing areas using dry cleanup methods. Fueling areas should never be washed down unless dry clean-up has been done and the wash water is collected and disposed of in the sanitary sewer system.
- Post signs against "topping off" of vehicle fuel tanks.
- The fuel dispensing area should be covered, and the cover must not drain onto the fuel dispensing area.
- The paving around the fuel dispensing area should exceed the minimum dimensions of the "fuel dispensing area", and should have a means for containing accidental spills.

✓ **Salt Storage Structure** - Salt pile structures should be adequately sized to allow for the loading and unloading of salt within the structure. Review the Department of Environmental Protection's Drinking Water Program Guidelines On Deicing Chemical (Road Salt) Storage at <http://www.state.ma.us/dep/brp/dws/files/saltgui.doc>.

6. Residential Land Uses – Approximately 30% of the combined Zone II and Zone Cs consist of residential areas. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Continue to educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Continue to work with planners to control new residential developments in the water supply protection areas.
- ✓ Continue to promote BMPs for stormwater management and pollution controls.

7. Presence of Federal Superfund Site and Oil or Hazardous Material Contamination Sites – The Zone C for South Cove contains a United States Environmental Protection Agency (USEPA) Superfund Site that is associated with DEP Tier Classified Oil and/or Hazardous Material Release Sites listed on DEP's Sites Database as Release Tracking Numbers 3-0002621, 3-0010239, 3-0010469, 3-0010628, 3-0010739, 3-0010858, 3-0011622, and 3-0013157. The Zone II and Zone Cs also contain DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the maps as Release Tracking Numbers 3-0000036, 3-0000148, 3-0000331, 3-0003287, 3-0003304, 3-0003728, 3-0004480, 3-0004750, 3-0010268, 3-0017307, 3-0017359, 3-0017906, 3-0017927, 3-0019210, and 4-0006043. Refer to the attached map and Appendix C for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Continue to monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

8. Protection Planning – Currently, the Town is in the process of updating water supply protection controls to meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead and Watershed Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Develop a Wellhead and Watershed Protection Plan. Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance, “Developing a Local Wellhead Protection Plan” and “Developing a Local Surface Water Supply Protection Plan”.
- ✓ Coordinate efforts with local officials to compare local wellhead and watershed protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2), and MA Surface Water Supply Protection Regulations 310 CMR 22.20B and 310 CMR 22.20C. If there are no local controls or they do not meet the current regulations, adopt controls that meet 310 CMR 22.21(2), 310 CMR 22.20B and 310 CMR 22.20C. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floordrains, be sure to include floordrain controls that meet 310 CMR 22.21(2).

Other land uses and activities within the Zone II and Zone Cs that are potential sources of contamination are included in Table 2.

Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth

information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Top 5 Reasons to Develop a Local Wellhead and Surface Water Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone II and Zone C’s contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Adoption and enforcement of local Hazardous Materials Storage and Use Ordinance
- Working closely with MWRA TRAC department regarding hazardous materials in the Weymouth sewer system
- Adopting a “No Salt Zone” policy for the application of road salt within Zone A and Zone I
- Identifying and mapping storm drains draining into the watershed as part of the EPA Phase II Stormwater Rule
- Redirecting drainage from DPW yard to outside of the Zone II
- Completing self-audit of DPW facility as part of EPA audit program
- Working with the Weymouth Highway Department to redirect the Washington Street stormdrains that flow into South Cove to Whitman’s Pond.
- Inventory, mapping, inspecting, and cleaning stormdrains.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and/or Zone A?	YES (Libbey Park Well)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Great Pond, South Cove, Circuit Ave. Well, Main Street Well, Winter Street Well #1, Winter Street Well #2)	To the extent possible, remove non-water supply activities from each Zone I and prohibited activities in Zone A to comply with DEP's Zone I and Zone A requirements. Investigate options for gaining ownership or control of the Zone I for groundwater sources.
Are the Zone I and Zone A posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone I and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I and Zone A?	YES (Libbey Park Well)	Continue monitoring for non-water supply activities in Zone As.
	NO (Great Pond, South Cove, Circuit Ave. Well, Main Street Well, Winter Street Well #1, Winter Street Well #2)	Monitor non-water supply activities in Zone I and prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)	NO	Work with the Planning Board and the Board of Selectmen to adopt land use controls that meet 310 CMR 22.21(2) and 310 CMR 22.20C. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	Uncertain	Request that municipal officials in Abington, Braintree, Hingham, Holbrook, and Rockland develop land use restrictions that meet 310 CMR 22.21(2) and 310 CMR 22.20C, and to incorporate Weymouth's source protection areas.
Planning		
Does the PWS have a local surface water and wellhead protection plan?	NO	Develop a surface water supply protection plan. Follow "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ . Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement the plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed and wellhead protection committee?	YES	Reconvene committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	Board of Health has a Hazardous Materials Bylaw. For additional guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	YES	Currently, the only outreach is through the annual Consumer Confidence Report, flyers, and bill stuffers. Increase residential outreach through school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II and Zone Cs.

- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Develop and implement a Wellhead Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection’s Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP’s Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier and town boards.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN WEYMOUTH'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
326677	AMES DEPARTMENT STORE	140 MAIN STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
31927	BOBS COLLISION	185 LIBERTY STREET	WEYMOUTH	HANDLER	SMALL QUANTITY GENERATOR
223383	CAMERONS GULF SERVICE	4 HOLLIS STREET	WEYMOUTH	FUEL DISPENDER	FUEL DISPENSER
223383	CAMERONS MOBIL SERVICE	4 HOLLIS STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR
223383	CAMERONS MOBIL SERVICE	4 HOLLIS STREET	WEYMOUTH	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
317273	CAPITAL PAPER RECYCLING	200 LIBBY INDUSTRIAL PARKWAY	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
359014	CAPITAL PAPER RECYCLING INC	200 LIBBY INDUSTRIAL PARKWAY	WEYMOUTH	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
363630	CELTIC COLLISION INC	77 PLEASANT STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR
136138	CUMBERLAND GULF #60436	237 MAIN STREET	WEYMOUTH	FUEL DISPENDER	FUEL DISPENSER
136491	CUMBERLAND GULF 118610	767 MAIN STREET	WEYMOUTH	FUEL DISPENDER	FUEL DISPENSER
205716	DELUZE COLLISION CENTER	84 LIBERTY STREET	WEYMOUTH	HANDLER	SMALL QUANTITY GENERATOR
365069	EGG & G INC	150-152 UNION STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
132645	FISHER PIERCE	90 LIBBY INDUSTRIAL PARKWAY	WEYMOUTH	HANDLER	SMALL QUANTITY GENERATOR
132645	FISHER PIERCE	90 LIBBY INDUSTRIAL PARKWAY	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
217386	FIT TO PRINT INC	106 FINNELL DRIVE	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
35761	GERBRANDS JACK MASS TIRE INC	76 POND STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR
209568	GETTY 30315	522 MAIN STREET	WEYMOUTH	FUEL DISPENDER	FUEL DISPENSER
210060	GETTY 30363	469 WASHINGTON STREET	WEYMOUTH	FUEL DISPENDER	FUEL DISPENSER
337174	GOOD BROTHERS DODGE	577 COLUMBIAN STREET	WEYMOUTH	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
36553	HOLLIS ALVIN & CO	1 HOLLIS STREET	WEYMOUTH	HANDLER	SMALL QUANTITY GENERATOR
28417	JANNELL MOTORS INC	1068 MAIN STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR
126806	KEVEN ROONEY INC	686 MAIN STREET	WEYMOUTH	FUEL DISPENDER	FUEL DISPENSER
356542	KHOURYS GAS INC	565 BROAD STREET	WEYMOUTH	FUEL DISPENDER	FUEL DISPENSER
365067	M & S AUTO	150 UNION STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
28987	MASS ELECTRIC COMPANY	186 MAIN STREET	WEYMOUTH	FUEL DISPENDER	FUEL DISPENSER
28987	MASSACHUSETTS ELECTRIC COMPANY	186 MAIN STREET	WEYMOUTH	HANDLER	LARGE QUANTITY GENERATOR
28987	MASSACHUSETTS ELECTRIC COMPANY	186 MAIN STREET	WEYMOUTH	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
130918	MATHEWSON CORP	86 FINNELL DRIVE	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
130918	MATHEWSON CORP	86 FINNELL DRIVE	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR
367682	MINAS AUTO REPAIR	150 UNION STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
178140	MOBIL OIL CORP SS 754	512 MAIN STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
178140	MOBIL OIL CORP SS 754	512 MAIN STREET	WEYMOUTH	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
132012	SMITH RICKY PONTIAC INC	25 MAIN STREET	WEYMOUTH	HANDLER	SMALL QUANTITY GENERATOR
132643	SOUTH SHORE HOSPITAL	55 FOGG ROAD	WEYMOUTH	HANDLER	SMALL QUANTITY GENERATOR
126807	SOUTH WEYMOUTH SERVICE	512 MAIN STREET	WEYMOUTH	FUEL DISPENSER	FUEL DISPENSER
332267	SOUTHEASTERN METAL FAB	195 LIBBY INDUSTRIAL PARKWAY	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR
332267	SOUTHEASTERN METAL FAB	195 LIBBY INDUSTRIAL PARKWAY	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
31873	SPEEDY MUFFLER KING	254 MAIN STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR
136141	SUNOCO SERVICE STATION	995 MAIN STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR
357180	SUNSET AUTOMOTIVE SERVICE INC	195 PARK AVENUE WEST	WEYMOUTH	FUEL DISPENSER	FUEL DISPENSER
356530	SUPER PETROLEUM INC	150-152 UNION STREET	WEYMOUTH	FUEL DISPENSER	FUEL DISPENSER
363451	SUPER PETROLEUM INC	995 MAIN STREET	WEYMOUTH	FUEL DISPENSER	FUEL DISPENSER
285876	SUPERSHINE CAR WASH CITGO	1068 MAIN STREET	WEYMOUTH	FUEL DISPENSER	FUEL DISPENSER
205600	SURE GO TRANSMISSIONS	866 WASHINGTON STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR
210011	THS AUTO SERVICE	325 RALPH TALBOT STREET	WEYMOUTH	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
210011	THS AUTO SERVICE CITGO	325 RALPH TALBOT STREET	WEYMOUTH	FUEL DISPENSER	FUEL DISPENSER
32417	UNLIMITED AUTO SERVICE INC	77 PLEASANT STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
52483	US NAVAL AIR STATION	1134 MAIN STREET - CODE 01E	WEYMOUTH	PLANT	RES APPLICATION APPROVED
297186	WALGREENS 2709	969 MAIN STREET	WEYMOUTH	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
115675	WALLYS PRINT INC	86 POND STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR
132924	WEYMOUTH DEPARTMENT OF PUBLIC WORKS	120 WINTER STREET	WEYMOUTH	DISCHARGE	MWRA SEWER CONNECTION
364223	WEYMOUTH DPW	120 WINTER STREET	WEYMOUTH	FUEL DISPENDER	FUEL DISPENSER
30201	WEYMOUTH HONDA	211 MAIN STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR
30201	WEYMOUTH HONDA	211 MAIN STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
30201	WEYMOUTH HONDA	211 MAIN STREET	WEYMOUTH	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
338860	WEYMOUTH MRI	420 LIBBY INDUSTRIAL PARKWAY	WEYMOUTH	DISCHARGE	MWRA SEWER CONNECTION
317014	WEYMOUTH RENTALS INC	1059 WASHINGTON STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR
317014	WEYMOUTH RENTALS INC	1059 WASHINGTON STREET	WEYMOUTH	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
35427	CAR CRAFT AUTO BODY INC	521 GROVE STREET	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
37640	DICKINSON BECTON IMMUNOCYTOmetry	60 COLUMBIAN STREET	BRAINTREE	HANDLR	VERY SMALL QUANTITY GENERATOR
215559	ALCATEL VACUUM PRODUCTS	67 SHARP STREET	HINGHAM	HANDLER	SMALL QUANTITY GENERATOR
215559	ALCATEL VACUUM PRODUCTS	67 SHARP STREET	HINGHAM	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
228845	B E PETERSON INC	75 INDUSTRIAL PARK ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
228845	B E PETERSON INC	75 INDUSTRIAL PARK ROAD	HINGHAM	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
331316	BYRNE INDUSTRIES INC	70 SHARP STREET	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
265813	CJM CONSTRUCTION	85 RESEARCH ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
32260	CRANE JOHN INC	4 KEITH WAY	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR
334498	ELDRED WHEELER	60 SHARP STREET	HINGHAM	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
229557	HENNIGAN ENGINEERING	55 INDUSTRIAL PARK ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
324878	JM PERRONE CO INC	105 RESEARCH ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR
324878	JM PERRONE CO INC	105 RESEARCH ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
29880	MACKENZIE MACHINE AND DESIGN INC	10 INDUSTRIAL PARK ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
332074	NATIONAL OFFSET BLANKET SUPPLY INC	41 SHARP STREET	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
34301	NE SEALCOATING CO INC	120 INDUSTRIAL PK ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR
34301	NE SEALCOATING CO INC	120 INDUSTRIAL PK ROAD	HINGHAM	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
229008	NICHOLOSON CONSTRUCTION CO	85 RESEARCH ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
115388	PREMCO INC	55 RESEARCH ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR
115388	PREMCO INC	55 RESEARCH ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
228847	RISO PRODUCTS	15 INDUSTRIAL PARK ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR
230021	RJL PRINTING INC	65 INDUSTRIAL PARK ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR
52481	RUSS ELECTRIC INC	99 INDUSTRIAL PARK ROAD	HINGHAM	HANDLER	LARGE QUANTITY GENERATOR
52481	RUSS ELECTRIC INC	99 INDUSTRIAL PARK ROAD	HINGHAM	TURRPT	LARGE QUANTITY TOXIC USER
228857	SATUIT SWISS	15 INDUSTRIAL PARK ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR
228857	SATUIT SWISS	15 INDUSTRIAL PARK ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
331318	TRICORE INC	100 SHARP STREET	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
26733	US REPEATING ARMS CO INC	100 RESEARCH ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR
26733	US REPEATING ARMS CO INC	100 RESEARCH ROAD	HINGHAM	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
228851	VIP CLEANERS	95 RESEARCH ROAD	HINGHAM	HANDLER	VERY SMALL QUANTITY GENERATOR
130011	VULCAN CO INC THE	51 SHARP STREET	HINGHAM	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
28888	READ SAND & GRAVEL INC	171 V F W DRIVE	ROCKLAND	HANDLER	VERY SMALL QUANTITY GENERATOR
28888	READ SAND & GRAVEL INC	171 V F W DRIVE	ROCKLAND	HANDLER	RECYCLER - BURNER/BLENDER

UNDERGROUND STORAGE TANKS WITHIN WEYMOUTH'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
ALVIN HOLLIS & CO	100 POND STREET	WEYMOUTH	PETROLEUM DISTRIBUTOR	3000	DIESEL
CAMERONS MOBIL SERVICE	4 HOLLIS STREET	WEYMOUTH	GAS STATION	10000	GASOLINE
CAMERONS MOBIL SERVICE	4 HOLLIS STREET	WEYMOUTH	GAS STATION	8000	GASOLINE
CAMERONS MOBIL SERVICE	4 HOLLIS STREET	WEYMOUTH	GAS STATION	8000	GASOLINE
CUMBERLAND GULF	767 MAIN STREET	WEYMOUTH	GAS STATION	10000	GASOLINE
CUMBERLAND GULF	767 MAIN STREET	WEYMOUTH	GAS STATION	10000	GASOLINE
CUMBERLAND GULF	767 MAIN STREET	WEYMOUTH	GAS STATION	10000	GASOLINE
CUMBERLAND GULF	767 MAIN STREET	WEYMOUTH	GAS STATION	550	WASTE OIL
CUMBERLAND GULF	237 MAIN STREET	WEYMOUTH	GAS STATION	6000	GASOLINE
CUMBERLAND GULF	237 MAIN STREET	WEYMOUTH	GAS STATION	6000	GASOLINE
CUMBERLAND GULF	237 MAIN STREET	WEYMOUTH	GAS STATION	6000	GASOLINE
CUMBERLAND GULF	237 MAIN STREET	WEYMOUTH	GAS STATION	4000	GASOLINE
EG & G	150-152 UNION STREET	WEYMOUTH	GAS STATION	10000	GASOLINE
EG & G	150-152 UNION STREET	WEYMOUTH	GAS STATION	5000	GASOLINE
GETTY STATION	522 MAIN STREET	WEYMOUTH	GAS STATION	10000	GASOLINE
GETTY STATION	522 MAIN STREET	WEYMOUTH	GAS STATION	8000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
GETTY STATION	522 MAIN STREET	WEYMOUTH	GAS STATION	6000	GASOLINE
GETTY STATION	469 WASHINGTON STREET	WEYMOUTH	GAS STATION	10000	GASOLINE
GETTY STATION	469 WASHINGTON STREET	WEYMOUTH	GAS STATION	10000	GASOLINE
GETTY STATION	469 WASHINGTON STREET	WEYMOUTH	GAS STATION	550	WASTE OIL
MASS ELECTRIC	186 MAIN STREET	WEYMOUTH	UTILITIES	10000	GASOLINE
MASS ELECTRIC	186 MAIN STREET	WEYMOUTH	UTILITIES	10000	DIESEL
MOBIL	512 MAIN STREET	WEYMOUTH	GAS STATION	12000	GASOLINE
MOBIL	512 MAIN STREET	WEYMOUTH	GAS STATION	10000	GASOLINE
MOBIL	512 MAIN STREET	WEYMOUTH	GAS STATION	6000	GASOLINE
MOBIL	512 MAIN STREET	WEYMOUTH	GAS STATION	1000	WASTE OIL
ROONEY'S	686 MAIN STREET	WEYMOUTH	GAS STATION	6000	GASOLINE
ROONEY'S	686 MAIN STREET	WEYMOUTH	GAS STATION	5000	GASOLINE
ROONEY'S	686 MAIN STREET	WEYMOUTH	GAS STATION	4000	GASOLINE
ROONEY'S	686 MAIN STREET	WEYMOUTH	GAS STATION	1000	DIESEL
ROUTE 18 TEXACO	995 MAIN STREET	WEYMOUTH	GAS STATION	8000	GASOLINE
ROUTE 18 TEXACO	995 MAIN STREET	WEYMOUTH	GAS STATION	8000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
ROUTE 18 TEXACO	995 MAIN STREET	WEYMOUTH	GAS STATION	8000	GASOLINE
SOUTH WEYMOUTH CITGO	1068 MAIN STREET	WEYMOUTH	GAS STATION	12000	GASOLINE
SOUTH WEYMOUTH CITGO	1068 MAIN STREET	WEYMOUTH	GAS STATION	12000	GASOLINE
SUNSET SERVICE STATION	195 PARK AVENUE WEST	WEYMOUTH	GAS STATION	6000	GASOLINE
SUNSET SERVICE STATION	195 PARK AVENUE WEST	WEYMOUTH	GAS STATION	6000	GASOLINE
SUNSET SERVICE STATION	195 PARK AVENUE WEST	WEYMOUTH	GAS STATION	4000	GASOLINE
THS CITGO	325 RALPH TALBOT STREET	WEYMOUTH	GAS STATION	10000	GASOLINE
THS CITGO	325 RALPH TALBOT STREET	WEYMOUTH	GAS STATION	10000	GASOLINE
THS CITGO	325 RALPH TALBOT STREET	WEYMOUTH	GAS STATION	6000	GASOLINE
WEYMOUTH DEPARTMENT OF PUBLIC WORKS	120 WINTER STREET	WEYMOUTH	MUNICIPAL	10000	GASOLINE

For more information on underground storage tanks, visit the Massachusetts department of fire services web site: <http://www.state.ma.us/dfs/ust/usthome.htm>

Note: this appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Weymouth’s Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm> or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0004480	237 Main Street	Weymouth	Oil
3-0003287	60 Winter Street	Weymouth	Oil
3-0003304	512 Main Street	Weymouth	Oil and Hazardous Material
3-0017906	325 Ralph Talbot Street	Weymouth	Oil
3-0017927	55 To 111 Central Street	Weymouth	Oil
3-0019210	24 Burton Terrace	Weymouth	Oil
3-0003728	747 Front Street	Weymouth	--
3-0000148	325 Ralph Talbot Street	Weymouth	--
3-0004750	55 Hollis Street	Weymouth	Oil
3-0000036	686 Main Street	Weymouth	--
4-0010268	118 Thicket Street	Abington	Oil
3-0000331	100 Industrial Park Road	Hingham	Oil
3-0017359	100 Research Road	Hingham	Oil
3-0017307	100 Research Road	Hingham	Oil
4-0006043	163 Forest Street	Rockland	--

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Wilmington Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Wilmington Water Department
<i>PWS Address</i>	115 Andover Street
<i>City/Town</i>	Wilmington, Massachusetts 01887
<i>PWS ID Number</i>	3342000
<i>Local Contact</i>	Michael Woods - Superintendent
<i>Phone Number</i>	978-658-4711

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

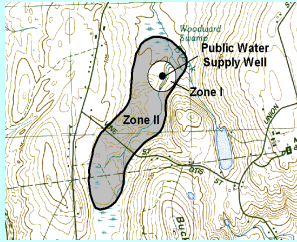
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Additional Resources Available for Source Protection
5. Appendices

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

Zone II #: 150

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Brown's Crossing Wellfield	3342000-01G
Barrows Wellfield	3342000-02G
Salem Street GP Well	3342000-08G

Zone II #: 151

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Shawsheen Ave. GP Well	3342000-05G
Aldrich Rd. GP Well	3342000-06G

Zone II #: 152

Susceptibility: High

<i>Well Names</i>	<i>Source IDs</i>
Chestnut St. GP Well	3342000-03G
Town Park GP Well	3342000-04G
Butters Row GP Well #1	3342000-07G
Butters Row GP Well #2	3342000-09G
Chestnut St. GP Well #1A	3342000-10G

The wells for the Wilmington Water Department are located within three separate water supply protection areas, with portions extending into the towns of Billerica, Burlington, North Reading, Tewksbury, and Woburn. Each well has a Zone I radius of 400 feet, except for the Browns Crossing and Barrows Wellfields, which have a 250 foot Zone I. The wells are located in aquifers with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. The Aldrich Well has been inactive for several years. Please refer to the attached map of the Zone II.

For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Discussion of Land Uses in the Protection Areas

Each Zone II for Wilmington has a mixture of residential, commercial, industrial, waste disposal, open space, and forested land uses (refer to attached map for details). Other land uses include mining, and transportation corridors. Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

Key issues include:

1. Inappropriate Activities in Zone I
2. Local Businesses
3. Oil or Hazardous Material Contamination Sites
4. Residential Land Uses and Activities
5. Sand and Gravel Operation
6. Stormwater Catch Basins
7. Transportation Corridor
8. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for Wilmington is high, based on the presence of at least one high threat land use within each Zone II, as seen in Table 2.

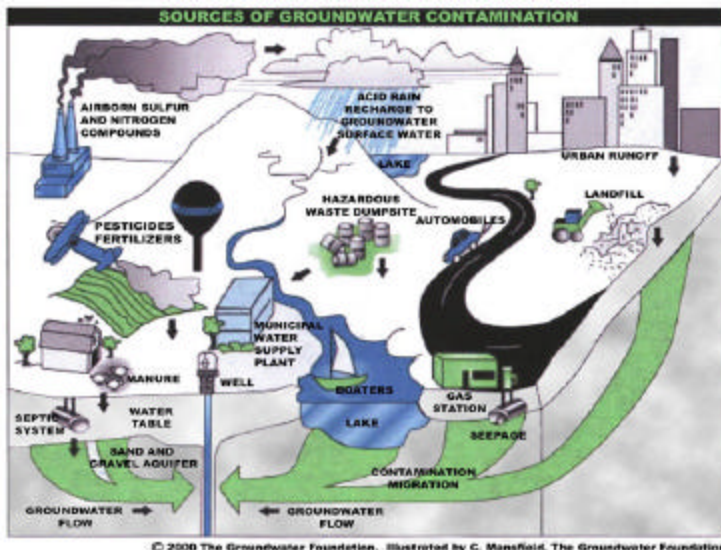
1. Inappropriate Activities in Zone I – Some older wells may not meet the Zone I requirement. In many cases the land is owned by municipalities, and is used for recreational activities. Among the significant threats to water supplies are septic systems, pesticides and fertilizers, storm water runoff and underground storage tanks which often accompany these land uses. Not owning or controlling the Zone I of a groundwater source puts drinking water supplies at significantly increased risk of contamination.

The “Drinking Water Regulations of Massachusetts” 310 CMR 22.21(3)(b) states that all suppliers of water shall acquire ownership or control of sufficient land around wells used as sources of drinking water to protect the water from contamination. This requirement shall generally be deemed to have been met if all land within the Zone I is under ownership or control of the supplier of water.

Inappropriate Activities in Zone I - Recommendations

- ✓ **Remove Activity** - Request that the Town of Wilmington discontinue the use of the ball field in the Zone I of the Town Park Well.
- ✓ **Ownership or Control** - If outright ownership is not an immediate option, attempt to negotiate a Conservation Restriction with the Town for the purposes of providing and promoting exclusive and perpetual protection of water supply and water quality.

2. Local Businesses – Because many small businesses and industries use hazardous materials, produce hazardous waste products, and often store large quantities of petroleum products, there is the potential for degrading water quality. Educating the business community about drinking water protection, and encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.



Local Businesses - Recommendations:

- ✓ **Hazardous Materials Program Best Management Practices** - Support the development and implementation of a hazardous materials program that includes a Bylaw or Health Regulation. 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. See DEP’s website for additional information on developing a program for hazardous materials management at <http://www.state.ma.us/dep/brp/dws/files/hazmat.doc>.

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.

- ✓ **Inspection Program** – Coordinate efforts with local officials in the development and implementation of an Inspection Program to prevent hazardous substances from entering water supplies. Inspections target facilities that generate, use, store, or disposal of hazardous/toxic materials. Programs can also include floor drain and underground storage tanks inspections. Local inspection programs often provide educational material and technical assistance on Best Management Practices. Building Inspectors are often involved in local inspection programs.
- ✓ **Hazardous Materials Best Management Practices** - Work with local businesses to encourage training on proper hazardous material use, disposal, and emergency response. Refer to the attached list of resources for more information on hazardous material BMPs.
- ✓ **Storage Tanks** - Support your local fire department in upgrading all above and below ground oil/hazardous material storage tanks in order to meet current construction standards. Funding for replacing underground storage tanks is available through the MA Department of Revenue. For more information, refer to http://www.dor.state.ma.us/ust/ust_home.htm



- ✓ **Register Hazardous Waste Generators** - Work with local businesses to register with DEP those facilities that are unregistered generators of hazardous waste or waste oil.
- ✓ **Monitor Land Uses** - Work with the Selectmen, Board of Health and Planning Board to monitor land uses within and proximal to the Zone II. Refer to the Wellhead Protection Plan guidance and model bylaws at <http://www.state.ma.us/dep/brp/dws/files/whplan.doc> for types of activities that should be prohibited and managed in the vicinity of public or private water supplies.
- ✓ **Lawn care and Landscaping** - Encourage local businesses to incorporate Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides. For more information, refer to http://www.massdfa.org/pesticides/publications/IPM_kit_for_bldg_mgrs.pdf

3. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 3-0000471, 3-0000904, 3-0001728, 3-0001916, 3-0002549, 3-0003548, 3-0003766, 3-0003958, 3-0004022, 3-0004168, 3-0012586, 3-0014811, 3-0015247, 3-0018858, 3-0019519, 3-0019651, 3-0019809.

In addition to these sites, the former Maple Meadow Landfill (Spinazola Landfill) is being assessed and closed in accordance with DEP’s Solid Waste regulations. Under an Administrative Consent Order between DEP and by the site owner, the site owner will do a landfill closure, which is currently in the design and construction review phase.

For more information refer to the attached map, Appendix C, and the Bureau of Waste Site Cleanup’s website at <http://www.state.ma.us/dep/bwsc/sitelist.htm>

Oil or Hazardous Material Contamination Sites – Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or hazardous material contamination sites.

4. Residential Land Use - If managed improperly, household hazardous waste, septic systems, lawn care, and pet waste can all contribute to groundwater contamination. Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances.

If a septic system fails or is not properly maintained, it could be a potential source of microbial contamination. Fertilizers and pesticides contain hazardous chemicals that can travel through the soil and contaminate ground water if over-applied. Pet waste may contain bacteria, parasites, or viruses that pose a health risk. Water supplies may also be threatened from improper use or disposal of chemical products used in homes. Educating residents on proper disposal of these materials is the best defense against pollution.

Residential Recommendations - Household Hazardous Waste:

- ✓ **Proper Disposal** - Educate residents on the problem of disposing of hazardous materials in landfills, septic systems, wastewater treatment plants, storm drains, and on the ground. Encourage residents to participate in the Town of Wilmington’s annual Household Hazardous Waste Collection Day.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix 2: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Agricultural				
Landscaping	1	M	152	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Manure Storage or Spreading	1	H	152	Manure (microbial contaminants): improper handling
Commercial				
Airports		H	151	Spills, leaks, or improper handling of fuels, de-icers, salt, and other hazardous chemicals
Body Shops	3	H	151, 152	Vehicle paints, solvents, and primer products: improper management
Car/Truck/Bus Washes	1	L	152	Vehicle wash water, soaps, oils, greases, metals, and salts: improper management
Gas Stations	6	H	151, 152	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	11	H	150, 151, 152	Automotive fluids, and solvents: spills, leaks, or improper handling
Bus and Truck Terminals	1	H	152	Fuels and maintenance chemicals: spills, leaks, or improper handling
Funeral Homes	1	L	152	Spills, leaks, or improper handling of hazardous chemicals
Laundromats	1	L	152	Improper management of wash water
Medical Facilities	1	M	150	Biological, chemical, and radioactive wastes: spills, leaks, or improper handling or storage
Photo Processors	2	H	151, 152	Photographic chemicals: spills, leaks, or improper handling or storage
Printer And Blueprint Shops	5	M	152	Printing inks and chemicals: spills, leaks, or improper handling or storage
Railroad Tracks And Yards	1	H	152	Herbicides, transported chemicals and maintenance chemicals; fuel storage: over-application or improper handling, leaks or spills
Repair Shops (Engine, Appliances, Etc.)	1	H	150	Engine fluids, lubricants, and solvents: spills, leaks, or improper handling or storage
Research Laboratories	2	M	152	Spills, leaks, or improper handling or storage of laboratory chemicals and wastes
Sand And Gravel Mining/Washing	1	M	150	Heavy equipment, fuel storage, clandestine dumping: spills or leaks

Activities	Quantity	Threat*	Zone II ID#	Potential Source of Contamination*
Industrial				
Asphalt, Coal Tar, And Concrete Plants	2	M	150	Hazardous chemicals and wastes: spills, leaks, or improper handling or storage
Chemical Manufacture Or Storage	2	H	152	Chemicals and process wastes: spills, leaks, or improper handling or storage
Electronics/Electrical Manufacturers	1	H	152	Chemicals and process wastes: spills, leaks, or improper handling or storage
Electroplaters	1	H	152	Solvents and other chemicals: spills, leaks, or improper handling or storage
Fuel Oil Distributors	1	H	152	Fuel oil: spills, leaks, or improper handling or storage
Hazardous Materials Storage	3	H	150, 152	Hazardous materials: spills, leaks, or improper handling or storage
Industry/Industrial Parks	3	H	150	Industrial chemicals and metals: spills, leaks, or improper handling or storage
Residential				
Fuel Oil Storage (at residences)	Numerous	M	150, 151, 152	Fuel oil: spills, leaks, or improper handling
Lawn Care/Gardening	Numerous	M	150, 151, 152	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	Numerous	M	150, 151, 152	Household hazardous waste: improper disposal, and microbial contaminants
Miscellaneous				
Aboveground Storage Tanks	1	M	152	Materials stored in tanks: spills, leaks, or improper handling
Composting Facilities	1	L	152	Storage and improper handling of organic material, animal waste, and runoff
Landfills and Dumps	2	H	150, 152	Seepage of leachate
Large Quantity Hazardous Waste Generators	6	H	151,152	Hazardous materials and waste: spills, leaks, or improper handling or storage
NPDES Locations	3	L	150, 152	Hazardous material and wastes: improper disposal
Oil or Hazardous Material Sites	17	----	150, 151, 152	Oil or hazardous materials and waste: spills, leaks, or improper handling or storage
Road And Maintenance Depots	1	M	150	Asphalt materials and other chemicals, aboveground and underground storage tanks with gasoline and diesel storage: spills, leaks, or improper handling of deicing materials
Schools, Colleges, and Universities	1	M	151	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small quantity hazardous waste generators	18	M	150, 151, 152	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Numerous	L	150, 152	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way - Type: <u>electric</u>	2	L	150, 151	Construction and corridor maintenance, over-application or improper handling of pesticides
Transportation Corridors	3	M	150, 152	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides

Activities	Quantity	Threat*	Zone II	Potential Source of Contamination
Miscellaneous				
Underground Storage Tanks	3	H	150, 152	Spills, leaks, or improper handling stored materials
Very Small Quantity Hazardous Waste Generator	28	L	150, 151, 152	Hazardous materials and waste: spills, leaks, or improper handling or storage
Waste Incinerator	1	M	150	Improper management and seepage of water contacting waste
Wastewater Treatment Plant/Collection Facility/	1	M	150	Treatment chemicals or equipment maintenance materials: improper handling or storage; wastewater: improper management
Water Treatment Sludge Lagoon	3	M	150, 152	Sludge and wastewater: improper management
Water Supply Protection Area % that is Sewered = 15%				
Notes:				
<ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix 3: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix B: Tier Classified Oil and/or Hazardous Material Sites. 				
<p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>				

✓ **Alternative Products** - Provide residents with information on options that are available to substitute less hazardous substances for many products used in the home.

Residential Recommendations - Septic systems:

✓ **System Care** - Educate residents on private septic systems about using cleaning compounds that are safe for the septic system, on proper disposal practices, i.e. only sanitary waste in the septic system. Information on septic systems can be found at Massachusetts Department of Environmental Protection's website <http://www.state.ma.us/dep/brp/files/yoursyst.htm>.

✓ **Proper Disposal** - Residents should dispose of used oil, antifreeze, paints, and other household chemicals properly - not in septic systems.

Residential Recommendations - Lawn Care and Landscaping:

✓ **Environmentally Sound Lawn Care** - Provide educational materials to residents about the proper application of pesticides or fertilizers. Landscape with native grasses, native flowering plants and trees and shrubs.

Once established, native plants require less water and may not require fertilizer, herbicide or pesticide use. Encourage the use of native plants and landscaping by establishing a demonstration area at a town facility. Information on environmentally sound lawn care practices can be obtained from the Massachusetts Department of Food and Agriculture Pesticide Bureau's website at <http://www.massdfa.org>.

Residential Recommendations - Heating Oil Tanks:

✓ **Aboveground Storage Tanks** - Provide educational materials to residents regarding the proper storage of liquid petroleum products in aboveground storage tanks. The Department requires all Wellhead protection zoning and non zoning controls to prohibit the siting of liquid petroleum products storage in Zone II unless such storage is aboveground, on an impervious surface and either in a container or in an aboveground tank within a building, or in an area that has a containment system designed and operated to hold either 10 percent of the total possible storage capacity of all containers, or 110% of the largest container storage capacity whichever is greater.

Consult with the local fire department for any additional local code requirements regarding aboveground storage tanks. A fact sheet on basement or outside oil tank can be obtained from the Barnstable County Department of Health And Environment at <http://www.CapeCod.net/bcdhe/oil/oil.htm>.

5. Sand and Gravel Operation - The potential for ground water contamination during removal of sand and gravel operations exists as a result of accidental spills or leaks from heavy equipment, improper fuel storage, vehicle washing operations, and illegal dumping. Improper waste management and hazardous materials storage also pose a significant threat to ground water, and a wide variety of potentially harmful components are involved in the release of these products. Working with owners of sand and gravel operations to implement the following recommendations will greatly reduce the risk of contaminating groundwater.

What are "BMPs?"

Best Management Practices are structural (i.e. oil & grease trap catch basins), nonstructural (i.e. hazardous waste collection days) or managerial measures that are used to protect and improve surface water and groundwater quality.

Sand and Gravel Operation Recommendations - Best Management Practices

- ✓ **Storage of Hazardous Materials** - Ensure that liquid petroleum products and hazardous materials are stored aboveground, on an impervious surface and either in a container or in an aboveground tank within a building, or in an area that has a containment system designed and operated to hold either 10 percent of the total possible storage capacity of all containers, or 110% of the largest container storage capacity whichever is greater. Storage of petroleum products in the pit area should be discouraged.
- ✓ **Disposal of Hazardous Material** - Encourage the training of employees on proper hazardous material disposal and emergency response in the event of spills or leaks. Refer to the attached list of resources for more information on hazardous material BMPs.
- ✓ **Equipment Maintenance** - Suggest the following maintenance practices:
 - ❖ Perform equipment maintenance and repairs outside the pit area
 - ❖ Repair hydraulic equipment as soon as leaks are detected
 - ❖ Develop a spill prevention plan and clean up spills immediately
- ✓ **Vehicle Washing** - Managing vehicle washing near drinking water sources is important because the wash water can percolate through soil and contaminate ground water. DEP Water Pollution Control regulations 314 CMR 5.00 prohibit the discharge of wash water into the ground. Coordinate efforts with the local Board of Health and Fire Department to monitor the progress of any remedial action taken in response to enforcement action issued by DEP.
- ✓ **Erosion and Sedimentation Control** - Without appropriate erosion and sedimentation controls, sand and gravel activities can contribute large amounts of sediment to storm water runoff. Erosion can be controlled by planting temporary fast-growing vegetation, such as grasses and wild flowers. Other measures include sediment traps and basins; sediment fences; wind erosion controls; and sediment, chemical, and nutrient control.
- ✓ **Dust Control** - Control dust to prevent nuisance and public hazard; use water rather than calcium chloride; never use oil!
- ✓ **Retention Basins** - Use retention basins to trap fine material; clean out regularly
- ✓ **Reclaim Excavations** - Work with the owner in developing a plan for reclamation. Reclamation should include:
 - ❖ leaving surface soil which can sustain vegetation, and plant with native vegetation to prevent erosion
 - ❖ grade slopes to the natural angle so as to prevent erosion
 - ❖ restore original, natural drainage

Sand and Gravel Operation Recommendations - Illegal Dumping

- ✓ **Monitor Illegal Dumping** - Request that the facility owner inspect property for signs of illegal dumping, and coordinate efforts to properly dispose of material.

Sand and Gravel Operation Recommendations - Excavation Depth: The Town of Wilmington, through its Groundwater Protection District Bylaw, prohibits earth removal unless the final grading is greater than four (4) feet above the historic high groundwater mark. This bylaw applies to new or expanded uses.

- ✓ **Monitor Excavation Depth** - The Wilmington Water Department, in conjunction with the Planning and Conservation Department, should monitor excavation depths to ensure that sand and gravel operations do not violate the Town of Wilmington's Groundwater Protection District Bylaw by excavating below four (4) feet of the historic high groundwater mark

6. Stormwater Catch Basins – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

Stormwater Catch Basins – Recommendations:

- ✓ **Inspect, Maintain, and Clean** - Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Additionally, street and parking lot sweeping reduces the amount of potential contaminants in runoff. Note: Catch basin cleanings are classified as solid waste by DEP and must be handled and disposed in accordance with all regulations, policies, and guidance. In the absence of written approval from DEP, catch basin cleanings must be taken to a facility permitted by DEP to accept solid waste. For information on DEP’s Nonpoint Competitive Grants Program Upcoming Funding Opportunity refer to: <http://www.state.ma.us/dep/brp/mf/nfpubs.htm#wpa>.
- ✓ **Best Management Practices** - Work with the Town to develop Best Management Practices that are the most effective, practical means of preventing or reducing pollution from nonpoint sources. Information is available at <http://www.epa.gov/OWOW/NPS/roads.html>.
- ✓ **Local Controls** - Encourage local officials to develop a local stormwater ordinance. For more information see <http://www.epa.gov/owow/nps/ordinance/stormwater.htm>.
- ✓ **Storm Drain Stenciling Program** - Work with local watershed groups to institute a Storm Drain Stenciling Program. For more information on how to develop a storm drain stenciling program go to <http://www.earthwater-stencils.com>
- ✓ **Stormwater Planning** - Encourage local officials to become familiar with and begin to implement a stormwater management program to meet DEP’s Phase II Storm Water Regulations. For additional information, refer to the Stormwater Management Information at <http://www.state.ma.us/dep/brp/ww/wwpubs.htm#storm>.

7. Transportation Corridor - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. De-icing salt washes off into storm drains or onto adjacent ground. In addition, roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes.

Transportation Corridor - Recommendations:

- ✓ **Design and Best Management Practices** – Contact the Massachusetts Highway Department to determine if the stormwater drainage systems along Route 93 conform to structural Best Management Practices (BMPs) to prevent pollution from storm water affecting the water quality of Wilmington’s wells. Best management practices reduce or prevent pollution from reaching water bodies and control the quantity/quality of runoff from a site (refer to *Storm Water Management Handbook*, volume 1 and 2 for information on structural BMPs located in attachments).
- ✓ **Emergency Response Plan** - Inform the Massachusetts Highway Department of the location of Wilmington’s wells that are in close proximity to Route 93. Provide them with a copy of Wilmington’s Emergency Response Plan.

8. Comprehensive Wellhead Protection Planning - Protection planning prevents drinking water contamination by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are numerous resources available to help communities in developing a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ **Develop A Land Acquisition Plan** - Land acquisition projects protect water supplies by limiting the land development potential. Acquisitions can be accomplished by water systems through conservation restrictions, land banking, land purchases and land donations. Sample conservation restrictions are available at: <http://www.state.ma.us/dep/brp/dws/>. Future development of Zone II is a major concern. The Department recommends that the water district acquire Zone II land closest to the Zone I or land that is subject to high-risk development (refer to Developing a local Wellhead Protection Plan).
- ✓ **Local Controls** - Coordinate efforts with local officials in Billerica, Burlington, North Reading and Woburn to compare existing controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2). For more information on DEP land use controls see <http://www.state.ma.us/dep/brp/dws/>.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

- ➊ Reduces Risk to Human Health
- ➋ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ◆ Increased groundwater monitoring and treatment
 - ◆ Water supply clean up and remediation
 - ◆ Replacing a water supply
 - ◆ Purchasing water
- ➌ Supports municipal bylaws, making them less likely to be challenged
- ➍ Ensures clean drinking water supplies for future generations
- ➎ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

- ✓ **Inspection Program** - Develop and implement an Inspection Program for facilities that generate, use, store, or dispose of hazardous/toxic materials. Local Board of Health and Building Inspectors working on inspections often include floor drain and underground storage tanks. Local inspection programs can provide valuable technical assistance on Best Management Practices.

Other land uses and activities that may be potential contaminant sources include auto body shops, gas stations, and schools. Refer to Table 2 and Appendix 2 for more information about these land uses.

Identifying potential contaminant sources is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential contaminant sources are identified, specific recommendations like those below should be used to better protect the Wilmington wells.

Section 3: Source Water Protection

Implementing source protection measures and Best Management Practices (BMPs) will reduce the Wilmington Water Department System's susceptibility to contamination. Additional source protection recommendations are listed in Table 3 and the Key Issues above.

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Wilmington Water Department is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- ❖ Adopting land use controls that meet DEP's Drinking Water Regulations
- ❖ Working with Olin Chemical to minimize nitrite impacts to the public water system from Olin's historic release of ammonia to the aquifer

Appendix 1 includes specific recommendations for each of the following:

➤ **Partner with Local Businesses:**

Since many small businesses and industries use hazardous materials and produce hazardous waste products, it is essential to educate the business community about drinking water protection. Encouraging partnerships between businesses, water suppliers, and communities will enhance successful public drinking water protection practices.

➤ **Provide Outreach to the Community:**

Public education and community outreach ensure the long-term protection of drinking water supplies. Awareness often generates community cooperation and support. Residents and business owners are more likely to change their behavior if they know where the wellhead protection recharge area is located; what types of land uses and activities pose threats; and how their efforts can enhance protection.

➤ **Plan for the Future:**

One of the most effective means of protecting water supplies is planning, such as the adoption of local controls to protect watersheds and ground water. These controls may include health regulations, general ordinances, and zoning bylaws that prohibit potential sources of contamination from wellhead protection areas.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. These recommendations are only part of your ongoing local drinking water source protection.

Section 4: Additional Resources Available for Source Protection

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The assessment and protection recommendations in this SWAP report are provided as a tool to spur community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities.

The Wilmington Water Department should supplement this SWAP report with local information on potential sources of contamination and land uses. To aid in the protection of the wells, local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Funding Resources:

The Department’s Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing Water Supply Source Protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. For additional information, please refer to the program fact sheet from this year. Please note: each spring DEP posts a new Request for Response for the Grant program (RFR).

The Aquifer Land Acquisition Program protects both surface and groundwaters used for drinking water purposes. Land acquisition is considered to be the single best way to protect a drinking water supply. Land acquisitions for water supply protection purposes include outright purchases, conservation restrictions, land donations, and interest in land taken by eminent domain. These funds will be available to water suppliers and municipal governments through the process described below. All publicly owned water suppliers, districts, or municipalities are invited to express an interest by submitting a Statement of Need covering any land purchase expected to be made to protect a public water supply that can be completed by June 30, 2002. The Department of Environmental Protection will select respondents of the Draft Statement of Need to submit a completed Final Statement of Need based on DEP land acquisition standard operating procedures, ability to use the funds by June 30, 2002, and other environmental criteria as determined necessary by the Secretary and Commissioner.

For further information on the Aquifer Land Acquisition Program, contact Joseph McNealy, Director of Program Development, Department of Environmental Protection, at (617) 556-1068.

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, Aquifer Land Acquisition Program, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection’s Municipal Services web site at: <http://www.state.ma.us/dep/brp/mf/mfpubs.htm>.

For More Information

Contact Anita Wolovick in DEP’s Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

Section 5: Appendices

1. Protection Recommendations
2. Regulated Facilities within the Water Supply Protection Area
3. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
4. Additional Documents on Source Protection in Wilmington

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	YES	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Town Park Well)	Investigate options for gaining ownership or control for this sources.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	NO	Monitor non-water supply activities in Zone Is, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21 (2)?	YES	Monitor activities in Zone II to assure compliance with local wellhead protection controls.
Do neighboring communities protect the Zone II areas extending into their communities?	Unknown	Request that municipal officials in Billerica, Burlington, North Reading, and Woburn develop land use restrictions that meet 310 CMR 22.21(2).
Planning		
Does the PWS have a Wellhead Protection Plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Augment plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a wellhead protection committee?	YES	Expand the committee to include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	NO	Currently, the Wilmington Water Department and the Wilmington Fire Department are coordinating efforts to conduct inspections. The town is encouraged to continue this program, and to include municipal facilities. For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc .
Does the PWS provide wellhead protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN THE WILMINGTON WATER SUPPLY PROTECTION AREA

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
132254	AAMCO TRANSMISSIONS	611 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
131607	AGFA DIVISION, BAYER CORPORATION	200 BALLARDVALE ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR
32439	ALS SERVICE CENTER	103 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
114468	ANTONS CLEANERS INC	240 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
114468	ANTONS CLEANERS INC	240 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
321893	AVECIA INC	730 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	LARGE QUANTITY GENERATOR
321893	AVECIA INC	730 MAIN ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXIC USER
327930	B & L ENTERPRISES	880 MAIN STREET	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
327930	B & L ENTERPRISES	880 MAIN STREET	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
52799	BENEVENTO SAND & STONE	900 SALEM ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
205496	BROWN BOB AUTO SERVICE INC	127 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR
36008	BROWNS CUSTOM AUTO BODY	210 ANDOVER ST UNIT 12	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
28543	CAIN FRED F CHRYSLER PLYMOUTH	580 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
28543	CAIN FRED F CHRYSLER PLYMOUTH	580 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
293634	CAR MART INC	275 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR
293634	CAR MART INC	275 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
134418	CENTURY MACHINE CO INC	10 UPTON DR	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
134424	CHARLIES AUTO BODY	611 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
116704	COOPER INDUSTRIES INC	226 ANDOVER ST	WILMINGTON	TURA REPORTER	BELOW TUR REGULATED THRESHOLDS
132251	DIAMOND CRYSTAL SALT CO	10 BURLINGTON AVE	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
177631	EXXON CO USA 35644	205 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
32345	FEDERAL EXPRESS CORP	10 CORNELL PL	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
32345	FEDERAL EXPRESS CORP	10 CORNELL PL	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
32267	FIRESTONE STORE	496 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
345501	FLAGSHIP HYUNDAI INC	220 MAIN STREET	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR
134417	FRIDAY ENGINEERING INC	11 UPTON CT	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
311484	G&G PRINTING COMPANY	214 ANDOVER ST #7	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
126548	GIBBS OIL #1592	342 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
133076	GRAPHIC ACCENT	446 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR
134423	HAMPSHIRE PRESS INC THE	900 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR
336596	HEFFRONS AUTOMOTIVE	603 MAIN STREET	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
126538	HESS 21206	273 MAIN	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
307025	HESS STATION 21206	273 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
31409	HIGH TECH MACHINE & TOOL INC	218 ANDOVER ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
36358	IDEAL SERVICE RD	210 ANDOVE ST BAY 20	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
134414	J J T ENGINEERING INC	319 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
126549	JIMMYS GARAGE INC	945 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
126549	JIMMYS GARAGE INC	945 MAIN STREET	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
10461	KIRKWOOD TECHNICAL PUBLICATIONS	904 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131274	KOCH MEMBRANE SYSTEM INC	850 MAIN ST	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXIC USER
131274	KOCH MEMBRANE SYSTEMS INC	850 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	LARGE QUANTITY GENERATOR
131274	KOCH MEMBRANE SYSTEMS INC	850 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
301506	LARRYS GAS INC	880 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
330234	LARRYS OIL & BURNER SERVICE	880 MAIN STREET	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
28932	MARSHALL IND	33 UPTON DR	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
131605	OLIN CORP	51 EAMES ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	LARGE QUANTITY GENERATOR
131605	OLIN CORP	51 EAMES ST	WILMINGTON	SLUDGE	CHARGEABLE CLOSED LANDFILL
221311	PARKER GUITARS	226 ANDOVER ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
132255	PEPSI COLA BOTTLING GROUP	111 EAMES ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR
132255	PEPSI COLA BOTTLING GROUP	111 EAMES ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
116919	PRINT ONE	10 UPTON DR	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
327059	RACHEL A PERLITSH DMD	25 LOWELL STREET	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131272	RED E MIX CONCRETE	900 SALEM ST	WILMINGTON	DISCH	GROUND WATER NON NOTIFIER
132847	REGIONAL HEALTH CENTER	500 SALEM ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR
28976	RITCHIE & SONS INC	195 BALLARDVALE ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
134419	SHEA CONCRETE PRODUCTS INC	773 SALEM ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
134419	SHEA CONCRETE PRODUCTS INC	773 SALEM ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
134419	SHEA CONCRETE PRODUCTS INC	773 SALEM ST	WILMINGTON	DISCH	NON-NOTIFIER IWW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
325894	SHELL #137892	586 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
325893	SHELL #137893	361 MIDDLESEX AVE	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
306507	SIR SPEEDY PRINTING 81710	609 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
35575	SMITH JR ARTHUR R INC	214 ANDOVER ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
37314	STRAIGHTLINE AUTO BODY INC	210 ANDOVER ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
131254	SURFACE COATING	100 EAMES STREET	WILMINGTON	TURA REPORTER	LARGE QUANTITY TOXIC USER
131254	SURFACE COATING	100 EAMES STREET	WILMINGTON	HANDLER OF HAZARDOUS WASTE	LARGE QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131254	SURFACE COATING	100 EAMES STREET	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
131265	TEXTRON SYSTEMS CORPORATION	201 LOWELL ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	LARGE QUANTITY GENERATOR
131265	TEXTRON SYSTEMS CORPORATION	201 LOWELL ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
131265	TEXTRON SYSTEMS CORPORATION	201 LOWELL ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	RECYCLER - CLASS A PERMIT
131265	TEXTRON SYSTEMS CORPORATION	201 LOWELL ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
358163	TOSCO EXXON 2634699	205 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
210017	TOWN MARKET CITGO	490 MAIN ST	WILMINGTON	FUEL DISPENSER	FUEL DISPENSER
37327	U HAUL CENTER OF WILMINGTON	687 MAIN ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
26644	UNITED TOOL & DIE CO INC	EAMES ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
337009	VOLEX R F TECHNOLOGY	30B UPTON DRIVE	WILMINGTON	HANDLER OF HAZARDOUS WASTE	VERY SMALL QUANTITY GENERATOR
343613	WILMINGTON COMPOST SITE	OLD MAIN ST	WILMINGTON	COMPST	REGISTRATION
308853	WILMINGTON DEPARTMENT OF PUBLIC WORKS	135 ANDOVER ST	WILMINGTON	HANDLER OF HAZARDOUS WASTE	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

UNDERGROUND STORAGE TANKS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
BELL ATLANTIC	408 MAIN STREET	WILMINGTON		2500	Diesel
WILMINGTON DPW	135 ANDOVER STREET	WILMINGTON	PUBLIC WORKS FACILITY	10000	Gasoline
WILMINGTON DPW	135 ANDOVER STREET	WILMINGTON	PUBLIC WORKS FACILITY	10000	Diesel
DOM'S AUTOMOTIVE NORTH, INC.	603 MAIN STEET	WILMINGTON	SERVICE STATION	8000	GASOLINE
DOM'S AUTOMOTIVE NORTH, INC.	603 MAIN STEET	WILMINGTON	SERVICE STATION	8000	GASOLINE
DOM'S AUTOMOTIVE NORTH, INC.	603 MAIN STEET	WILMINGTON	SERVICE STATION	8000	Diesel
GIBB'S OIL	342 MAIN STREET	WILMINGTON	SERVICE STATION	10000	GASOLINE
GIBB'S OIL	342 MAIN STREET	WILMINGTON	SERVICE STATION	8000	GASOLINE
GIBB'S OIL	342 MAIN STREET	WILMINGTON	SERVICE STATION	8000	GASOLINE
HESS STATION	273 MAIN STREET	WILMINGTON	SERVICE STATION	8000	GASOLINE
HESS STATION	273 MAIN STREET	WILMINGTON	SERVICE STATION	8000	GASOLINE
HESS STATION	273 MAIN STREET	WILMINGTON	SERVICE STATION	8000	GASOLINE
JIMMY'S GARAGE	945 MAIN STREET	WILMINGTON	SERVICE STATION	6000	GASOLINE
JIMMY'S GARAGE	945 MAIN STREET	WILMINGTON	SERVICE STATION	6000	GASOLINE
JIMMY'S GARAGE	945 MAIN STREET	WILMINGTON	SERVICE STATION	8000	GASOLINE
JIMMY'S GARAGE	945 MAIN STREET	WILMINGTON	SERVICE STATION	6000	Diesel
LARRY'S GAS, INC.	880 MAIN STREET	WILMINGTON	SERVICE STATION	6000	GASOLINE
LARRY'S GAS, INC.	880 MAIN STREET	WILMINGTON	SERVICE STATION	6000	GASOLINE
LARRY'S GAS, INC.	880 MAIN STREET	WILMINGTON	SERVICE STATION	6000	Diesel
POLYVINYL CHEMICALS, INC.	730 MAIN STREET	WILMINGTON	MANUFACTURER	500	HAZARDOUS MATERIAL
POLYVINYL CHEMICALS, INC.	730 MAIN STREET	WILMINGTON	MANUFACTURER	7500	HAZARDOUS MATERIAL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
POLYVINYL CHEMICALS, INC.	730 MAIN STREET	WILMINGTON	MANUFACTURER	8000	HAZARDOUS MATERIAL
POLYVINYL CHEMICALS, INC.	730 MAIN STREET	WILMINGTON	MANUFACTURER	8000	HAZARDOUS MATERIAL
POLYVINYL CHEMICALS, INC.	730 MAIN STREET	WILMINGTON	MANUFACTURER	8000	HAZARDOUS MATERIAL
POLYVINYL CHEMICALS, INC.	730 MAIN STREET	WILMINGTON	MANUFACTURER	8000	HAZARDOUS MATERIAL
POLYVINYL CHEMICALS, INC.	730 MAIN STREET	WILMINGTON	MANUFACTURER	8000	HAZARDOUS MATERIAL
POLYVINYL CHEMICALS, INC.	730 MAIN STREET	WILMINGTON	MANUFACTURER	8000	HAZARDOUS MATERIAL
POLYVINYL CHEMICALS, INC.	730 MAIN STREET	WILMINGTON	MANUFACTURER	8000	HAZARDOUS MATERIAL
POLYVINYL CHEMICALS, INC.	730 MAIN STREET	WILMINGTON	MANUFACTURER	8000	HAZARDOUS MATERIAL
POLYVINYL CHEMICALS, INC.	730 MAIN STREET	WILMINGTON	MANUFACTURER	10000	HAZARDOUS MATERIAL
POLYVINYL CHEMICALS, INC.	730 MAIN STREET	WILMINGTON	MANUFACTURER	16000	HAZARDOUS MATERIAL
SHELL SERVICE STATION	586 MAIN STREET	WILMINGTON	SERVICE STATION	10000	GASOLINE
SHELL SERVICE STATION	586 MAIN STREET	WILMINGTON	SERVICE STATION	10000	GASOLINE
SHELL SERVICE STATION	586 MAIN STREET	WILMINGTON	SERVICE STATION	10000	GASOLINE
SHELL SERVICE STATION	586 MAIN STREET	WILMINGTON	SERVICE STATION	550	WASTE OIL
SHELL SERVICE STATION	361 MIDDLESEX AVE.	WILMINGTON	SERVICE STATION	12000	GASOLINE
SHELL SERVICE STATION	361 MIDDLESEX AVE.	WILMINGTON	SERVICE STATION	12000	GASOLINE
SHELL SERVICE STATION	361 MIDDLESEX AVE.	WILMINGTON	SERVICE STATION	12000	GASOLINE
SHELL SERVICE STATION	361 MIDDLESEX AVE.	WILMINGTON	SERVICE STATION	1000	WASTE OIL
TEXTRON SYSTEM CORPORATION	201 LOWELL STREET	WILMINGTON	MANUFACTURER/R&D	20000	FUEL OIL
TEXTRON SYSTEM CORPORATION	201 LOWELL STREET	WILMINGTON	MANUFACTURER/R&D	20000	FUEL OIL
TEXTRON SYSTEM CORPORATION	201 LOWELL STREET	WILMINGTON	MANUFACTURER/R&D	1000	GASOLINE
TOSCO	205 MAIN STREET	WILMINGTON	SERVICE STATION	8000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
TOSCO	205 MAIN STREET	WILMINGTON	SERVICE STATION	6000	GASOLINE
TOSCO	205 MAIN STREET	WILMINGTON	SERVICE STATION	6000	GASOLINE
TOSCO	205 MAIN STREET	WILMINGTON	SERVICE STATION	1000	WASTE OIL
TOWN MARKET CITGO	490 MAIN STREET	WILMINGTON	GAS STATION	8000	GASOLINE
TOWN MARKET CITGO	490 MAIN STREET	WILMINGTON	GAS STATION	5000	GASOLINE
TOWN MARKET CITGO	490 MAIN STREET	WILMINGTON	GAS STATION	5000	GASOLINE

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: <http://www.state.ma.us/dfs/ust/ustHome.htm>

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities located within the water supply protection area(s) should be considered in local drinking water source protection planning.



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Winchester Water and Sewer Division

What is SWAP?

The Source Water Assessment and Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Winchester Water and Sewer Division
<i>PWS Address</i>	15 Lake Street
<i>City/Town</i>	Winchester, MA 01890
<i>PWS ID Number</i>	3344000
<i>Local Contact</i>	Edward Grant
<i>Phone Number</i>	(781) 721-9015

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Section 1: Description of the Water System

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

IWPA: A 400-foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Groundwater Sources

IWPA

Susceptibility: High

<i>Well Name</i>	<i>Source ID#</i>
Pond Brook Tubular Wells	3344000-01G

Surface Water Sources

<i>Source Name</i>	<i>Source ID #</i>	<i>Susceptibility</i>
North Reservoir	3344000-01S	High
Middle Reservoir	3344000-02S	Moderate
South Reservoir	3344000-03S	Moderate

The reservoirs for the Winchester Water and Sewer Division (Winchester) are located within three separate water supply protection areas. The North Reservoir (01S) is located in Winchester and Stoneham, with the water supply protection area located in Winchester, Stoneham, and a small section extending into Medford; the Middle Reservoir (02S) is located in Medford and Stoneham, with the water supply protection area located in Winchester, Stoneham, and Medford; and, the South Reservoir (03S) is located in Medford, with the water supply protection area located in Winchester and Medford, with a small section extending into Stoneham.

The Pond Brook Tubular Wells, which is an inactive source, has an Interim Wellhead Protection Area (IWPA) that is located in Winchester and Woburn. Tubular wells have a Zone I radius of 250 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barrier (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the IWPA.

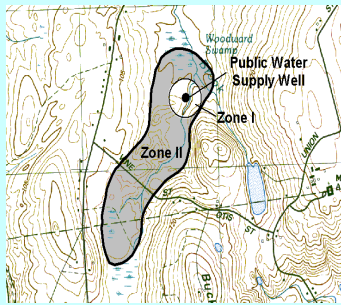
For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

Winchester watershed lands and IWPA lands are primarily a mixture of forest, and residential land use, with smaller portions consisting of commercial, industrial, and other land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Activities in Zone A
3. Residential Land Uses
4. Transportation Corridors
5. Oil or Hazardous Material Contamination Sites
6. Comprehensive Wellhead Protection Planning

The ranking of susceptibility to contamination for the Pond Brook Tubular Wells IWPA and the North Reservoir Zone C is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2. The ranking of susceptibility to contamination for the Middle Reservoir Zone C and the South Reservoir Zone C is moderate, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone I – The Zone I for each of the wells is a 250 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed prior to the Department's regulations and contain non-water supply activities such as homes

and public roads. The Zone I for Well #1 (01G) is not entirely owned or controlled by the public water supplier, and contains a school, homes, and small sections of local roads.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.

2. Activities in Zone As - Land use activities within the Winchester North Reservoir Zone A which, if managed improperly, may have an impact on the surface water source include: truck rental facility, homes, residential storage of heating oil, local roads, and stormwater runoff. Wild animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc.

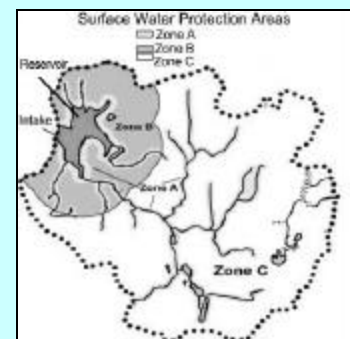
Zone A Recommendations:

- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.

3. Residential Land Uses – Approximately 56% of Winchester's combined IWPA and watershed lands consist of residential areas. Most of the areas have public sewers, and a very small portion still has on-site septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

**When you fertilize the lawn,
Remember
you're not just fertilizing the lawn.**



It's hard to imagine that a green, flourishing lawn could pose a threat to the environment, but the fertilizers you apply to your lawn are potential pollutants! If applied improperly or in excess, fertilizer can be washed off your property and end up in lakes and streams. This causes algae to grow, which uses up oxygen that fish need to survive. So if you fertilize, please follow directions and use sparingly.

The Massachusetts Department of Environmental Protection, One Winter Street, Boston, MA 02108

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.

4. Transportation Corridors - Transportation corridors and other paved and unpaved local roads cross through the water supply protection areas. Spills from vehicular accidents are a major concern. In addition, roadway construction, maintenance, and typical highway use can all be potential sources of contamination.

Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins.

(Continued on page 6)

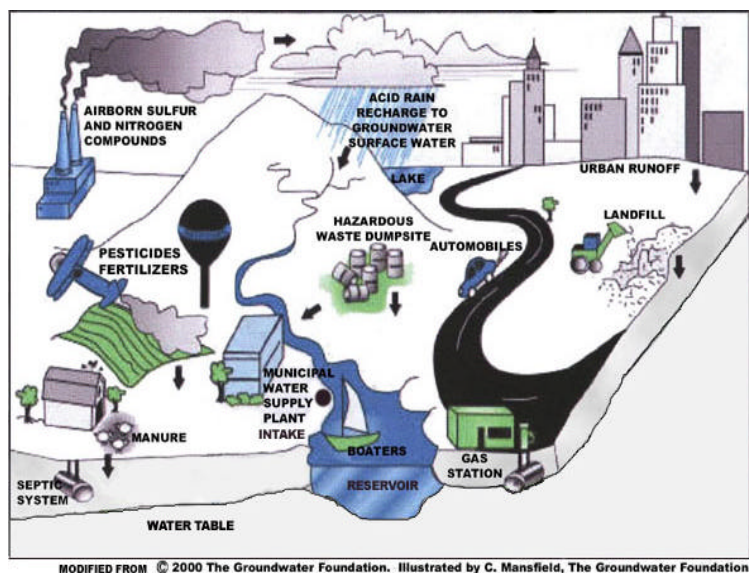


Figure 1: Sample watershed with examples of potential sources of contami-

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Water Supply Protection Areas

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	IWPA Source ID #	Zone C Source ID #	Potential Contaminant Sources*
Commercial					
Car/Truck/Bus Washes	1	L	01G	-	Improper management of vehicle wash water; soaps; oils; greases; metals; salts
Service Stations/ Auto Repair Shops	2	H	01G	-	Spills, leaks, or improper handling of automotive fluids, and solvents
Bus and Truck Terminals	1	H	-	01S	Spills, leaks, or improper handling of fuels and maintenance chemicals
Dry Cleaners	1	H	01G	-	Spills, leaks, or improper handling of solvents and wastes
Residential					
Fuel Oil Storage (at residences)	1	M	01G	01S, 02S, 03S	Fuel oil: spills, leaks, or improper handling
Lawn Care/ Gardening	Numerous	M	01G	01S, 02S, 03S	Pesticides: over-application or improper storage and disposal
Septic Systems/ Cesspools	Few	M	01G	01S, 02S, 03S	Hazardous chemicals: microbial contaminants, and improper disposal
Miscellaneous					
Aquatic Wildlife and Pet Waste	Numerous	L	-	01S, 02S, 03S	Microbial contaminants
NPDES Locations	1	L	-	01S	Improper disposal of hazardous material and wastes
Oil or Hazardous Material Sites	2	-	01G		Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Small Quantity Hazardous Waste Generators	2	M	01G	01S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Stormwater Drains/ Retention Basins	Several/0	L	01G	01S	Debris, pet waste, and chemicals in stormwater from roads, parking lots, and lawns
Transmission Line Rights-of-Way: electric	1	L	01G	-	Construction and corridor maintenance, over-application or improper handling of herbicides

Land Uses	Quantity	Threat	IWPA Source ID #	Zone C Source ID #	Potential Contaminant Sources*
Miscellaneous					
Transportation Corridors	1	M	-	01S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	8	M	01G	01S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Utility Substation Transformers	1	L	01G	-	Spills, leaks, or improper handling of chemicals and other materials including PCBs
Very Small Quantity Hazardous Waste Generators	2	L	01G	01S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Water Treatment Sludge Lagoons	2	L	-	01S	Sludge and wastewater: improper management
<p>Table Notes:</p> <ol style="list-style-type: none"> When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <ul style="list-style-type: none"> THREAT RANKING - Where there are two rankings, the first is for surface water, the second for groundwater sources. The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater. 					

(Continued from page 4)

Transportation Corridor Recommendations:

- ✓ Wherever possible, ensure that drains discharge stormwater outside of the Zone I.
- ✓ Identify stormwater drainage systems along transportation corridors. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained. Review storm drainage maps with emergency response teams.
- ✓ Work with the Town and State to best manage stormwater in the Zone II. Best management practices include street sweeping, vegetative swales, and regular catch basin inspection, cleaning and maintenance.

5. Presence of Oil or Hazardous Material Contamination Site – The IWPA contains MADEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Number 3-0013604 and 3-0018820. Refer to the attached map and Appendix C for more information.

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known contamination sites.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

6. Protection Planning – Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir. Currently, the Town of Winchester does not have water supply protection controls that meet DEP’s Wellhead Protection regulations 310 CMR 22.21(2) and DEP’s Surface Water Protection regulations 310 CMR 22.20 (b) and (c). Wellhead Protection and Surface Water Supply Protection Plans coordinate community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop plans for protecting drinking water supply sources.

Protection Planning Recommendations:

- ✓ Develop and implement Surface Water Supply and Wellhead Protection Plans. Refer your protection team to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP’s guidance on developing plans.
- ✓ If your local surface water supply protection controls do not meet the current regulations, coordinate efforts with local officials to adopt local water supply protection controls that meet current MA regulations 310 CMR 22.21(2) and 310 CMR 22.20 (b) and (c). For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.

**When you wash your car in the driveway,
Remember
you’re not just washing your car in the driveway.**

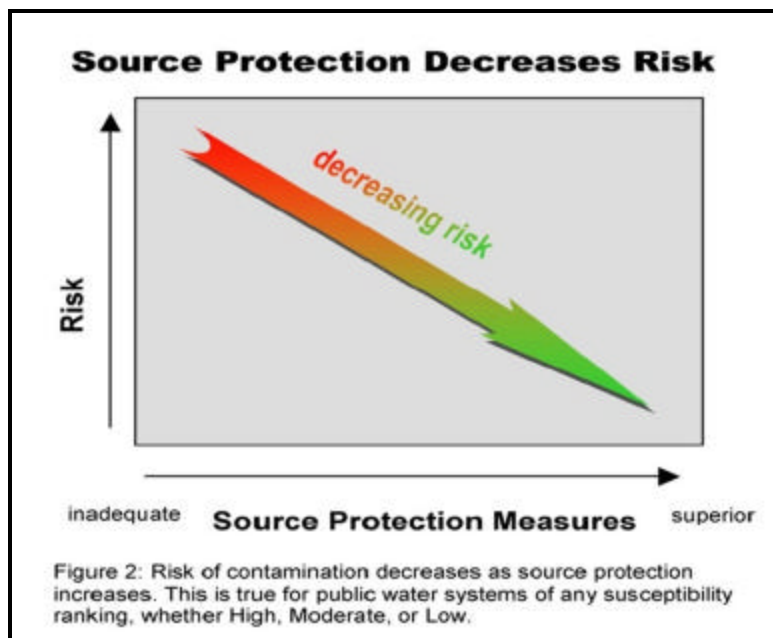


All the soap, suds, and oily grit runs along the curb, then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108

- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, <http://commpres.env.state.ma.us/>.

Other land uses and activities within the IWPA and watershed that are potential sources of contamination are included in Table 2. Refer to Appendix B for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.



Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, Winchester's IWPA and watersheds contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Support from municipality on land use activities within watersheds
- Controlling access to the reservoirs and watershed
- Ownership of a large percentage of the watershed by Winchester and MDC

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Inspect the Zone Is and As regularly, and when feasible, remove any non-water supply activities.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Develop and implement a Wellhead and Surface Water Protection Plan.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with the watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow to the Zone II .
2. The groundwater in this area probably discharges to surface water feature such as a river rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Top 5 Reasons to Develop a Local Wellhead and Surface Water Protection Plan

- 1 Reduces Risk to Human Health
- 2 Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- 3 Supports municipal bylaws, making them less likely to be challenged
- 4 Ensures clean drinking water supplies for future generations
- 5 Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above, and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. Grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the watersheds. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I and Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and/or Zone A?	YES (Zone A for Middle and South Reservoirs)	Follow Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Zone I for Pond Brook Tubular Wells and Zone A for North Reservoir)	To the extent possible, remove prohibited activities in Zone A to comply with DEP's Zone A requirements. Investigate options for gaining ownership or control of the Zone A.
Are the Zone I and Zone A posted with "Public Drinking Water Supply" Signs?	YES	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
	NO (Zone I for Pond Brook Tubular Wells)	Post Zone I until such time that this well field is officially abandoned.
Are the Zone I and Zone A regularly inspected?	YES	Continue daily inspections of drinking water protection areas.
	NO (Zone I for Pond Brook Tubular Wells)	Monitor activities in drinking water protection areas.
Are water supply-related activities the only activities within the Zone I and Zone A?	YES (Zone A for Middle and South Reservoirs)	Monitor for any non-water supply activities in Zone I and prohibited activities in Zone A, and investigate options for removing these activities.
	NO (Zone I for Pond Brook Tubular Wells and Zone A for North Reservoir)	Monitor prohibited activities in Zone I and Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO	Work with the Planning Board and the Board of Selectmen to compare land use controls to see that they meet current requirements of 310 CMR 22.21(2) and 310 CMR 22.20C. Refer to mass.gov/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Work with the communities of Medford, Stoneham, and Woburn to encourage them to protect watershed and IWPA lands.
Planning		
Does the PWS have a local surface water and wellhead protection plan?	NO	Develop and implement a surface water supply and wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" and "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	YES	Supplement plan by developing a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed and wellhead protection committee?	YES (Board of Selectmen)	Encourage committee to include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	UNKNOWN	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	YES (through MWRA)	Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial uses within the IWPA and watershed.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN WINCHESTER WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
26339	AW CHESTERTON CO	225 FALLON RD	STONEHAM	HANDLR	SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
26339	AW CHESTERTON CO	225 FALLON RD	STONEHAM	PLANT	BELOW AQ REGULATED THRESHOLDS
248828	RYDER TRUCK RENTAL INC	150 FALLON RD	STONEHAM	HANDLR	VERY SMALL QUANTITY GENERATOR RCRA HAZARDOUS WASTE
248828	RYDER TRUCK RENTAL INC	150 FALLON RD	STONEHAM	FULDSP	FUEL DISPENSER STAGEII
282885	GEI CONSULTANTS INC	1021 MAIN ST	WINCHESTER	DISCH	MWRA SEWER CONNECTION
209660	OKEEFFE CITGO SERVICE INC	1012 MAIN ST	WINCHESTER	FULDSP	FUEL DISPENSER
326744	ROYAL DRY CLEANERS	889 MAIN ST	WINCHESTER	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
287907	GARYS AUTOMOTIVE AND PERFORMANCE	75 MAIN ST	WOBURN	HANDLR	VERY SMALL QUANTITY GENERATOR OF HAZ WASTE
286355	WOBURN CAR WASH INC	75 MAIN ST	WOBURN	HANDLR	SMALL QUANTITY GENERATOR OF WASTE OIL OR PCBS

UNDERGROUND STORAGE TANKS WITHIN WINCHESTER WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
RYDER TRANSPORTATION SERV	150 FALLON RD	STONEHAM	TRUCK/TRANSPORT	4000	LUBE OIL
RYDER TRANSPORTATION SERV	150 FALLON RD	STONEHAM	TRUCK/TRANSPORT	4000	WASTE OIL
RYDER TRANSPORTATION SERV	150 FALLON RD	STONEHAM	TRUCK/TRANSPORT	20000	DIESEL
RYDER TRANSPORTATION SERV	150 FALLON RD	STONEHAM	TRUCK/TRANSPORT	10000	GASOLINE
O'KEEFFE CITGO SERVICE INC	1012 MAIN ST	WINCHESTER	SERVICE STATION	20000	GASOLINE
VERIZON MASSACHUSETTS	954 MAIN ST	WINCHESTER	UTILITIES	2000	DIESEL
VERIZON MASSACHUSETTS	954 MAIN ST	WINCHESTER	UTILITIES	4000	DIESEL
WOBURN CAR WASH INC	75 MAIN ST	WOBURN	GAS STATION	10000	GASOLINE
WOBURN CAR WASH INC	75 MAIN ST	WOBURN	GAS STATION	10000	GASOLINE

For More Information On Underground Storage Tanks, Visit The Massachusetts Department Of Fire Services Web Site: [Http://Www.State.Ma.Us/Dfs/Ust/Usthome.Htm](http://www.state.ma.us/dfs/ust/usthome.htm)

Note: This Appendix Includes Only Those Facilities Within The Water Supply Protection Area(S) That Meet State Reporting Requirements And Report To The Appropriate Agencies. Additional Facilities Located Within The Water Supply Protection Area(S) Should Be Considered In Local Drinking Water Source Protection Planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within Winchester Water Supply Protection Areas

DEP’s datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP’s Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP’s Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state’s OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at <http://www.state.ma.us/dep/bwsc>. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at <http://www.state.ma.us/dep/bwsc/sitellst.htm>, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN).

RTN	Release Site Address	Town	Contaminant Type
3-0013604	75 Main St	Woburn	Oil And Hazardous Material
3-0018820	71 Main St	Woburn	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).



Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Woburn Water Department

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

- inventory land uses within the recharge areas of all public water supply sources;
- assess the susceptibility of drinking water sources to contamination from these land uses; and
- publicize the results to provide support for improved protection.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

<i>PWS Name</i>	Woburn Water Department
<i>PWS Address</i>	50 North Warren Street
<i>City/Town</i>	Woburn, Massachusetts 01801
<i>PWS ID Number</i>	3347000
<i>Local Contact</i>	Fred Russell – DPW Director
<i>Phone Number</i>	(781) 932-4490

Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential contaminant sources, including storm runoff, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:

This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination, the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures.

Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection
4. Appendices

Glossary

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material (i.e. clay) that resists penetration by water.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Zone A: is the most critical for protection efforts. It is the area 400 feet from the edge of the reservoir and 200 feet from the edge of the tributaries (rivers and/or streams) draining into it.

Zone B: is the area one-half mile from the edge of the reservoir but does not go beyond the outer edge of the watershed.

Zone C: is the remaining area in the watershed not designated as Zones A or B.

The attached map shows Zone A and your watershed boundary.

Section 1: Description of the Water System

Groundwater Sources

Well Name	Source ID#
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Zone II #: 528

Susceptibility: High

Well F	3347000-06G
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Zone II #: 529

Susceptibility: High

Well A2	3347000-01G
Well D	3347000-02G
Well C2	3347000-03G
Well B	3347000-04G
Well I	3347000-10G

IWPAs:

Susceptibility: High

Dug Well	3347000-05G
Well E	3347000-07G
Well G	3347000-08G
Well H	3347000-09G

Surface Water Sources

Source Name	Susceptibility: High
Horn Pond	3347000-01S

The wells for the Woburn Water Department are located within four separate supply protection area, with areas extending into Burlington, Lexington, and Winchester. Each well has a Zone I radius of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. confining clay layer) that can prevent contaminant migration. Please refer to the attached map of the Zone II.

Horn Pond for the Woburn Water Department is located in a water supply protection area that extends into Burlington, Lexington, and Winchester. Horn Pond and the wells with IWPAs are former sources that are currently inactive, but have not been formally abandoned.

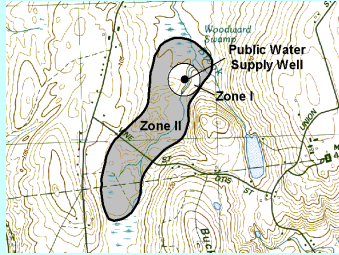
For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Drinking water monitoring reporting data is also available on the web at <http://www.epa.gov/safewater/ccr1.html>

Section 2: Land Uses in the Protection Areas

The Zone IIs, IPWAs, and Zone C for Woburn are primarily a mixture of residential, commercial, and industrial land uses, with a small portion of these areas consisting of recreational activities (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix B.

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and a Zone II protection area.



Key Land Uses and Protection Issues include:

1. Activities in Zone I
2. Activities in Zone A
3. Hazardous Materials Storage and Use
4. Golf Course, Landscaping, and Nurseries
5. Residential Land Uses
6. Transportation Corridors
7. Federal Superfund Site and Oil or Hazardous Material Contamination Sites
8. Comprehensive Wellhead Protection Planning

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one high threat land use within the water supply protection areas, as seen in Table 2.

1. Activities in Zone I – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. However, many public water supplies were developed

prior to the Department's regulations and contain non-water supply activities such as homes and public roads. The following non-water supply activities occur in the Zone Is of the system wells:

Well A2 - Vehicle parking, local roads, passive recreation, and utility substation transformers;

Well B - Vehicle parking, utility substation transformers and passive recreation;

Well C2 - Vehicle parking, utility substation transformers, and passive recreation;

Well D - Passive recreation

Well E - Several buildings, a trunk sewer line, and community gardens;

Well F - Passive recreation

Well I - Passive recreation

Well G - Several buildings and vehicle parking;

Well H - Several buildings and vehicle parking;

Dug Well - Vehicle parking, local roads, and utility substation transformers.

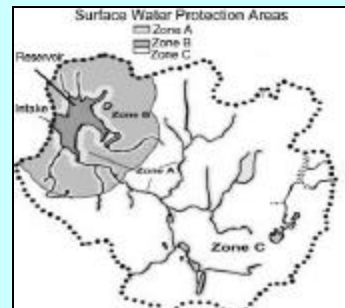
Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ Agreement Options - Attempt to obtain a *Memorandum of Understanding*. Memorandum of Understanding (MOU) is an agreement between the landowner and public water supplier in which the landowner agrees not to engage in specific threatening activities. The MOU should be specific to the land use or activity. For instance, if the land is residential with a septic system the owner could agree not to place chemicals, petroleum products, or other hazardous or toxic substances, including septic system cleaners into the septic system, and that the system will be pumped at a specific frequency. The application of lawn care chemicals could also be restricted. Understanding how activity threatens drinking water quality is an important component of developing an effective MOU.

2. Activities in Zone A - Existing and future land use activities which may have an impact on surface water sources include: on-site septic systems; public and private recreational activities; untreated stormwater runoff; uncontained storage of fertilizers, manure, domestic animals; new construction; spills along roads; above ground and underground storage tanks; erosion; and un-permitted and

What is a Watershed?

A watershed is the land area that catches and drains rainwater down-slope into a river, lake or reservoir. As water travels down from the watershed area it may carry contaminants from the watershed to the drinking water supply source. For protection purposes, watersheds are divided into protection Zones A, B and C.



unauthorized activities. Wild animals, farm animals, and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. The following activities occur in the Zone A of the system's reservoir:

Horn Pond - There are two oil or hazardous material contamination sites, numerous commercial and industrial businesses, several transmission line rights-of-way, a utility substation, numerous homes, local roads, numerous parking areas, and aquatic wildlife throughout the Zone A of Horn Pond and tributaries to the reservoir. Also, Route 95 passes through a small section of the Zone A of a tributary to the reservoir, and there is a sanitary sewer line that passes beneath part of the pond, with a manhole that rises out of the pond. This sewer line occasionally overflows into the pond when the sewer system can not handle the increased volume of infiltration and inflow during large storm events.

Zone A Recommendations:

- ✓ Reduce infiltration and inflow to abate sewer overflow into Horn Pond, as required by the August 16, 2001 Administrative Consent Order.
- ✓ To the extent possible, remove all activities from the Zone As to comply with DEP's Zone A requirements.

- ✓ Use BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Storage of pesticides, fertilizers or road salt within the Zone A should be covered and contained.
- ✓ Keep any new prohibited activities out of the Zone A.

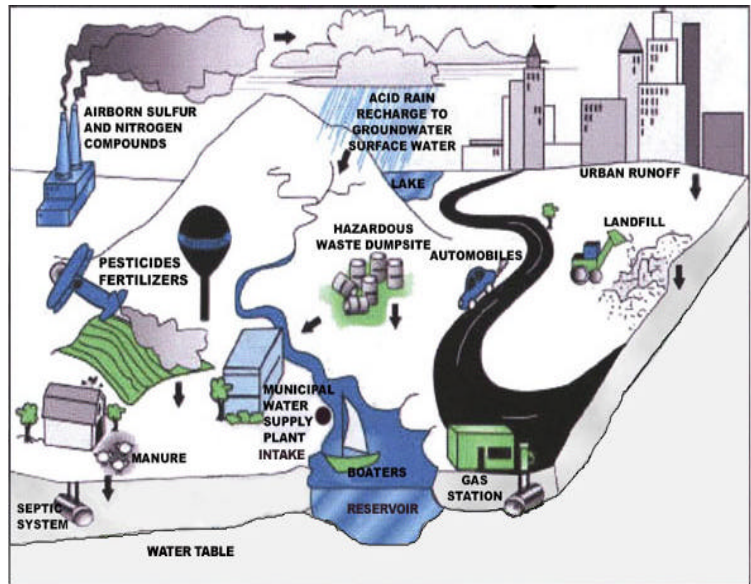
3. Hazardous Materials Storage and Use –

Thirteen percent of the land area within the combined source protection areas consist of commercial or industrial land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs). If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

Hazardous Materials Storage and Use Recommendations:

- ✓ Support the development and implementation of a hazardous materials program that includes a Bylaw or Health Regulation. Such a program educates businesses on hazardous material

(Continued on page 8)



MODIFIED FROM © 2000 The Groundwater Foundation. Illustrated by C. Mansfield, The Groundwater Foundation

Figure 1: Sample watershed with examples of potential sources of contamination

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Watershed

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Land Uses	Quantity	Threat	Zone II Number or Source ID#	Zone C Source ID	Potential Contaminant Sources*
Agricultural					
Fertilizer Storage or Use	6	M	528	01S	Leaks, spills, improper handling, or over-application of fertilizers
Landscaping	6	M	528	01S	Leaks, spills, improper handling, or over-application of fertilizers and pesticides
Nurseries	7	M	528	01S	Leaks, spills, improper handling, or over-application of fertilizers, pesticides, and other chemicals
Pesticide Storage or Use	6	H	528	01S	Leaks, spills, improper handling, or over-application of pesticides
Commercial					
Car/Truck/Bus Washes	3	L	529, 08G, 09G	01S	Improper management of vehicle wash water; soaps; oils; greases; metals; salts
Body Shops	numerous	H	All sources	01S	Improper management of vehicle paints, solvents, and primer products
Gas Stations	numerous	H	All sources	01S	Spills, leaks, or improper handling or storage of automotive fluids and fuels
Service Stations/ Auto Repair Shops	numerous	H	All sources	01S	Spills, leaks, or improper handling of automotive fluids, and solvents
Bus and Truck Terminals	1	H	08G, 09G		Spills, leaks, or improper handling of fuels and maintenance chemicals
Cemeteries	2	M		01S	Leaks, spills, improper handling, or over-application of pesticides; historic embalming fluids (such as arsenic)
Dry Cleaners	numerous	H	All sources	01S	Spills, leaks, or improper handling of solvents and wastes
Funeral Homes	7	L	529	01S	Spills, leaks, or improper handling of hazardous chemicals
Furniture Stripping and Refinishing	2	H	529	01S	Spills, leaks, or improper handling of hazardous chemicals
Golf Courses	5	M	528, 529, 05G, 07G	01S	Over-application or improper handling of fertilizers or pesticides
Laundromats	numerous	L	All sources	01S	Improper management of wash water
Medical Facilities	3	M	529	01S	Spills, leaks, or improper handling or storage of biological, chemical, and radioactive wastes

Land Uses	Quantity	Threat	Zone II Number or Source ID#	Zone C Source ID#	Potential Contaminant Sources*
Commercial					
Nursing Homes	2	L		01S	Microbial contaminants
Photo Processors	4	H	529	01S	Spills, leaks, or improper handling or storage of photographic chemicals
Printer and Blueprint Shops	numerous	M	528, 529	01S	Spills, leaks, or improper handling or storage of printing inks and chemicals
Railroad Tracks and Yards	1	H	08G, 09G		Over-application or improper handling of herbicides, leaks or spills of transported chemicals and maintenance chemicals; fuel storage
Repair Shops (Engine, Appliances, Etc.)	numerous	H	All sources	01S	Spills, leaks, or improper handling or storage of engine fluids, lubricants, and solvents
Research Laboratories	numerous	M	08G, 09G		Spills, leaks, or improper handling or storage of laboratory chemicals and wastes
Industrial					
Chemical Manufacture or Storage	numerous	H	08G, 09G		Spills, leaks, or improper handling or storage of chemicals and process wastes
Electroplaters	1	H	529		Spills, leaks, or improper handling or storage of solvents and other chemicals
Fuel Oil Distributors	4	H	529	01S	Spills, leaks, or improper handling or storage of fuel oil
Hazardous Materials Storage	numerous	H	All sources	01S	Spills, leaks, or improper handling or storage of hazardous materials
Industry/Industrial Parks	numerous	H	08G, 09G		Spills, leaks, or improper handling or storage of industrial chemicals and metals
Residential					
Fuel Oil Storage (at residences)	numerous	M	All sources	01S	Spills, leaks, or improper handling of fuel oil
Lawn Care/Gardening	numerous	M	All sources	01S	Over-application or improper storage and disposal of pesticides
Septic Systems/Cesspools	numerous	M	All sources	01S	Microbial contaminants, and improper disposal of hazardous chemicals
Miscellaneous					
Aboveground Storage Tanks	11	M	529, 08G, 09G	01S	Spills, leaks, or improper handling of materials stored in tanks
Aquatic Wildlife	numerous	L	All sources	01S	Microbial contaminants
Composting Facilities	2	L	528	01S	Storage and improper handling of organic material, animal waste, and runoff
Fishing/Boating	numerous	L	528, 529, 05G, 07G	01S	Fuel and other chemical spills, microbial contaminants
Large Quantity Hazardous Waste Generators	6	H	529, 08G, 09G	01S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Oil or Hazardous Material Sites	18	--	528, 529, 05G, 08G, 09G	01S	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.

Land Uses	Quantity	Threat	Zone II Number or Source ID#	Zone C Source ID#	Potential Contaminant Sources*
Miscellaneous					
Road and Maintenance Depots	2	M	529	01S	Spills, leaks, or improper handling or storage of deicing materials, automotive fluids, fuel storage, and other chemicals
Schools, Colleges, and Universities	4	M	528, 07G	01S	Spills, leaks, or improper handling or storage of fuel oil, laboratory, art, photographic, machine shop, and other chemicals
Small Quantity Hazardous Waste Generators	18	M	All sources	01S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Storm water Drains/Retention Basins	numerous	L	All sources	01S	Debris, pet waste, and chemicals in storm water from roads, parking lots, and lawns
Superfund Sites	1	H	08G, 09G		Spills, leaks, or improper handling or storage of oil or hazardous materials and waste
Transmission Line Rights-of-Way Type: <u>electric</u>	7	L	528, 529, 05G, 07G	01S	Construction and corridor maintenance, over-application or improper handling of herbicides
Transportation Corridors	3	M	528, 08G, 09G	01S	Accidental leaks or spills of fuels and other hazardous materials, over-application or improper handling of pesticides
Underground Storage Tanks	56	H	All sources	01S	Spills, leaks, or improper handling of stored materials
Utility Substation Transformers	1	L	529, 05G	01S	Spills, leaks, or improper handling of chemicals and other materials including PCBs
Very Small Quantity Hazardous Waste Generators	48	L	All sources	01S	Spills, leaks, or improper handling or storage of hazardous materials and waste
Wastewater Treatment Plant/Collection Facility/ Lagoon	1	M		01S	Improper handling or storage of treatment chemicals or equipment maintenance materials; improper management of wastewater
Notes:					
<ol style="list-style-type: none"> 1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies. 2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination. 3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites. <p>* THREAT RANKING - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.</p>					

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. See DEP's website for additional information on developing a program for hazardous materials management at <http://www.state.ma.us/dep/brp/dws/files/hazmat.doc>.

- ✓ Coordinate efforts with local officials in the development and implementation of an Inspection Program that is usually conducted by the local Board of Health to prevent hazardous substances from entering water supplies. Inspections target facilities that generate, use, store, or disposal of hazardous/toxic materials. Programs can also include floor drain inspections and underground storage tanks. Local inspection programs often provide educational material and technical assistance on Best Management Practices. Building Inspectors are often involved in local inspection programs.
- ✓ Work with local businesses to encourage training on proper hazardous material use,

disposal, and emergency response. Refer to the attached list of resources for more information on hazardous material BMPs.

- ✓ Support your local fire department in upgrading all above and below ground oil/hazardous material storage tanks in order to meet current construction standards. Funding for replacing underground storage tanks is available through the MA Department of Revenue. For more information, refer to http://www.dor.state.ma.us/ust/ust_home.htm
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Work with the Selectmen, Board of Health and Planning Board to monitor land uses within and proximal to the Zone II. Refer to the Wellhead Protection Plan guidance and model bylaws at <http://www.state.ma.us/dep/brp/dws/files/whplan.doc> for types of activities that should be prohibited and managed in the vicinity of public or private water supplies.

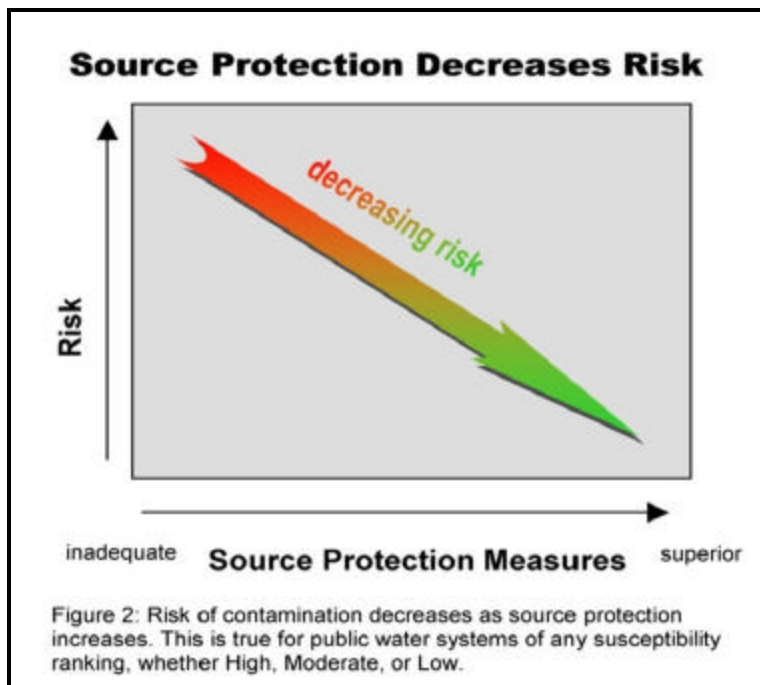
4. Golf Course, Landscaping, and Nurseries – Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or

**When you wash your car in the driveway,
Remember
you're not just washing your car in the driveway.**



All the soap, suds, and oily grit runs along the curb. Then into a storm drain and directly into our lakes, rivers, and streams. And that causes pollution which is unhealthy for everyone. So how do you avoid this whole mess? Easy! Wash your car on the grass or gravel instead of the street. Or better yet, take it to a car wash where the water gets treated or recycled.

The Massachusetts Department of Environmental Protection One Winter Street Boston, MA 02108



disposed of. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.

Golf Course, Landscaping, and Nurseries Activities Recommendations:

- ✓ Encourage golf course, landscaping, and nursery managers to incorporate an **Integrated Pest Management (IPM)** approach into their pest management program. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- ✓ Promote **Best Management Practices (BMPs)** for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- ✓ Work with golf course, landscaping, and nursery managers to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.

5. Residential Land Uses – Approximately 47% of the combined source protection areas consist of residential activities. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Household Hazardous Materials** - Hazardous materials may include automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and

adjacent properties to the ground. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet “Residents Protect Drinking Water” available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Work with planners to control new residential developments in the water supply protection areas.
- ✓ Promote BMPs for stormwater management and pollution controls.

6. Transportation Corridors - Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins.

Transportation Corridor Recommendations:

- ✓ Identify stormwater drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge stormwater outside of the Zone II and Zone Cs.
- ✓ Work with the City and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff.
- ✓ Work with City and State emergency response teams to ensure that any spills within the Zone II, Zone A and Zone C can be effectively contained.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with city officials to investigate mapping options such as those in the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping.

7. Presence of Federal Superfund Site and Oil or Hazardous Material Contamination Sites – The IWPA for Well G and Well H contains a United States Environmental Protection Agency (USEPA) Superfund Site that is associated with DEP Tier Classified Oil and/or Hazardous Material Release Sites identified as Release Tracking Numbers 3-0000479, 3-0000534, 3-0000594, 3-0001146, 3-0001423, 3-0001424, and 3-0002198. Other DEP Tier Classified Oil and/or Hazardous Material Release Sites are indicated on the map as Release Tracking Numbers 3-004250, 3-0012647, 3-0000475, 3-0019909, 3-0019134, 3-0018789, 3-0004067, 3-0012279, 3-0010691, 3-0002256, 3-0015002, 3-0012942, 3-0013604, 3-0018820, 3-0003951, 3-0001423, 3-0000534, and 3-0000482. Refer to the attached map and Appendix 3 for more information.

Federal Superfund Site and Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

8. Protection Planning – Currently, the City does not have water supply protection controls that meet DEP's Wellhead Protection regulations 310 CMR 22.21(2) and Surface Water Supply Protection Regulations 310 CMR 22.20B and 310 CMR 22.20C. Protection planning protects drinking water by managing the land area that supplies water to a well or reservoir.

A Water Resource Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a

forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Establish a protection team, and refer them to <http://mass.gov/dep/brp/dws/protect.htm> for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan" and "Developing a Local Surface Water Supply Protection Plan".
- ✓ Coordinate efforts with local officials to compare local wellhead and surface water protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21(2) and Surface Water Supply Protection Regulations 310 CMR 22.20B and 310 CMR 22.20C. If there are no local controls or they do not meet the current regulations, adopt controls that meet 310 CMR 22.21 (2), 310 CMR 22.20B and 310 CMR 22.20C. For more information on DEP land use controls see <http://mass.gov/dep/brp/dws/protect.htm>.
- ✓ If local controls do not regulate floor drains, be sure to include floor drain controls that meet 310 CMR 22.21(2).

Other land uses and activities within the IWPA's, Zone IIs and Zone C that are potential sources of contamination are included in Table 2. Refer to Appendix A for more information about these land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources.

Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

Top 5 Reasons to Develop a Local Wellhead and Surface Water Protection Plan

- ❶ Reduces Risk to Human Health
- ❷ Cost Effective! Reduces or Eliminates Costs Associated With:
 - ♦ Increased monitoring and treatment
 - ♦ Water supply clean up and remediation
 - ♦ Replacing a water supply
 - ♦ Purchasing water
- ❸ Supports municipal bylaws, making them less likely to be challenged
- ❹ Ensures clean drinking water supplies for future generations
- ❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Additional Documents:

- To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws including:
1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
 2. MA DEP SWAP Strategy
 3. Land Use Pollution Potential Matrix
 4. Draft Land/Associated Contaminants Matrix

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone A		
Does the Public Water Supplier (PWS) own or control the entire Zone I and/or Zone A?	YES (Wells D, F, and I)	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
	NO (Wells A2, B, C2, Dug Well, E, G, H, and Horn Pond)	To the extent possible, remove non-water supply activities from each Zone I and prohibited activities in Zone A to comply with DEP's Zone I and Zone A requirements. Investigate options for gaining ownership or control of the Zone I for groundwater sources.
Are the Zone 1 and Zone A posted with "Public Drinking Water Supply" Signs?	YES (Except for Wells E, G, and H)	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Are the Zone 1 and Zone A regularly inspected?	YES (Except for Wells E, G, H, and Horn Pond)	Wells E, G, H, and Horn Pond are not inspected because of their inactive status. Continue daily inspections of drinking water protection areas for sources that are active.
Are water supply-related activities the only activities within the Zone 1 and Zone A?	NO	There is passive recreation in the Zone I of Wells A2, B, C2, D, F, and I. Monitor non-water supply activities in Zone I and prohibited activities in Zone A, and investigate options for removing these activities.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Surface Water Protection Controls that meet 310 CMR 22.20C and Wellhead Protection Controls that meet 310 CMR 22.21(2)?	NO	Work with the Planning Board and the City Council to review existing Ordinance to determine if it meets land use controls required by 310 CMR 22.21(2) and 310 CMR 22.20B & C. Refer to www.state.ma.us/dep/brp/dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the water supply protection areas extending into their communities?	NO	Request that municipal officials in Burlington, Lexington, and Winchester develop land use restrictions that meet 310 CMR 22.21(2), 310 CMR 22.20B and 310 CMR 22.20C.
Planning		
Does the PWS have a local surface water and wellhead protection plan?	NO	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state.ma.us/dep/brp/dws/ . Develop a surface water supply protection plan. Follow "Developing a Local Surface Water Supply Protection Plan" available at: www.state.ma.us/dep/brp/dws/ .
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	NO	Work with local officials to develop a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams.
Does the municipality have a watershed and wellhead protection committee?	YES	The committee is currently comprised of city council members. Enhance the committee by including representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	YES	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide watershed protection education?	SOME	Currently, the only outreach is through the annual Consumer Confidence Report. Increase residential outreach through bill stuffers, school programs, Drinking Water Week activities, and coordination with local groups. Aim additional efforts at commercial, industrial and municipal uses within the Zone II and Zone C.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system's IWPA's, Zone IIs and Zone C contain potential sources of contamination. However, source protection measures reduce the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Working with Burlington, Wilmington, and Winchester on cross-town source protection issues through Project Impact.

Source Protection Recommendations:

To better protect the sources for the future:

- ✓ Inspect the Zone I and Zone A regularly, and when feasible, remove any non-water supply activities.
- ✓ Educate residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and Zone C and to cooperate on responding to spills or accidents.
- ✓ Partner with local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Develop and implement a Wellhead and Surface Water Protection Plan.

Conclusions:

These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A. DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community.

The Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: <http://mass.gov/dep/brp/mf/mfpubs.htm>.

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

- A. Protection Recommendations
- B. Regulated Facilities within the Water Supply Protection Area
- C. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
- D. Additional Documents on Source Protection

For More Information

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, town boards, and the local media.

APPENDIX A: DEP PERMITTED FACILITIES WITHIN WOBURN'S WATER SUPPLY PROTECTION AREAS

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
131463	ABERJONA AUTO PARTS INC	278 - 280 SALEM ST	WOBURN	HANDLER	RECYCLER - BURNER/BLENDER
131463	ABERJONA AUTO PARTS INC	278 - 280 SALEM ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
282220	ABSOLUTE PRECISION PHOTOGRAPHIC SCREEN	87 OLYMPIA AVE	WOBURN	DISCHARGE	MWRA SEWER CONNECTION
287364	ALPHAGENE INC	260 WEST CUMMINGS PARK	WOBURN	DISCHARGE	MWRA SEWER CONNECTION
318406	ANIKA THERAPEUTICS INC	236 WEST CUMMINGS PARK	WOBURN	HANDLER	LARGE QUANTITY GENERATOR
332004	AURORA GRAPHICS	34 CUMMINGS PARK	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
332004	AURORA GRAPHICS	34 CUMMINGS PARK	WOBURN	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
130712	AW CHESTERTON CO	9 FORBES RD	WOBURN	DISCHARGE	BELOW IWW REGULATED THRESHOLDS
186729	BEST PETROLEUM CO INC	477 MAIN ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
186729	BEST PETROLEUM CO INC	477 MAIN ST	WOBURN	FUEL DISPENSER	FUEL DISPENSER
33313	BIOTEK INC	21C OLYMPIA AVE	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
282409	BMA LABS	25S OLYMPIA AVE	WOBURN	DISCHARGE	MWRA SEWER CONNECTION

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
282570	CHARLS ICE CREAM SPECIALTIES	242 SALEM ST	WOBURN	DISCHARGE	MWRA SEWER CONNECTION
282574	CHARRETTE PROGRAPHICS	31 OLYMPIA AVE	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
282601	COLOR EXPRESS	266 WEST CUMMINGS PARK	WOBURN	DISCHARGE	MWRA SEWER CONNECTION
30055	CONSOLIDATED FREIGHTWAYS	295 SALEM ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
296788	COVINO ENVIRONMENTAL ASSOCIATES INC	300 WILDWOOD AVE	WOBURN	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
34447	CUMMINGS PROPERTIES INC	74 CUMMINGS PARK	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
263971	CURRY COPY CENTER OF WOBURN	482-A MAIN ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
325864	CVS #0665	415 MAIN STREET	WOBURN	HANDLER	SMALL QUANTITY GENERATOR
325864	CVS #0665	415 MAIN STREET	WOBURN	DISCHARGE	MWRA SEWER CONNECTION
312323	DATA PRINT	18 CRANES CT	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
257931	DICK A B COMPANY	400 WEST CUMMINGS PARK	WOBURN	HANDLER	SMALL QUANTITY GENERATOR
33163	DIX AUTO BODY	38 HIGH ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
130722	DIXON F W CO	55 SALEM ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
133826	DOLAN JENNER IND INC	99 BLUEBERRY HILL RD	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
130728	EASY WAY CLEANSERS INC	227 MAIN ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
31633	EDWARDS WELDING CO	25 CAMPBELL ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
282793	EPIC TECHNOLOGY	500 WEST CUMMINGS PARK	WOBURN	DISCHARGE	MWRA SEWER CONNECTION
263899	EXPRESS FUEL	505 MAIN ST	WOBURN	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
263899	EXPRESS FUEL	505 MAIN ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
263899	EXPRESS FUEL	505 MAIN ST	WOBURN	FUEL DISPENSER	FUEL DISPENSER
263899	EXPRESS FUEL	505 MAIN ST	WOBURN	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
126443	FARRELLS SERVICE CENTER	146 MAIN ST	WOBURN	FUEL DISPENSER	FUEL DISPENSER
126443	FARRELLS SERVICE CENTER	146 MAIN STREET	WOBURN	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
287907	GARYS AUTOMOTIVE AND PERFORMANCE	75 MAIN ST	WOBURN	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
287907	GARYS AUTOMOTIVE AND PERFORMANCE	75 MAIN ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
186528	GETTY 30393	325 WASHINGTON ST	WOBURN	FUEL DISPENSER	FUEL DISPENSER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
126444	GIBBS OIL 862	107 WINN ST	WOBURN	FUEL DISPENSER	FUEL DISPENSER
317352	GILES SERVICE CENTER	8 CAMPBELL ST	WOBURN	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
133825	GILL PATRICK J & SON INC	9 FOWLER ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
110175	GINN OIL COMPANY	57 WINN ST	WOBURN	FUEL DISPENSER	FUEL DISPENSER
52945	GREATER BOSTON YMCA	137 LEXINGTON ST	WOBURN	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
35153	GREEN STREET AUTOMOTIVE CENTER INC	7 GREEN ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
320555	HAMILTON AUTO BODY INC	4 ABERJONA DR	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
52929	HEIMLICH NURSERIES	71 BURLINGTON ST	WOBURN	PLANT	AQ NATURAL MINOR W/ PTE<MAJ & >50% OF MAJ
178615	HYGEIA LABORATORIES INC	600 WEST CUMMINGS PARK	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
178615	HYGEIA LABORATORIES INC	600 WEST CUMMINGS PARK	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
36048	IMAGRAPH CORP	800 W CUMMINGS PK	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
52908	J SHANNON & SONS	298 LEXINGTON ST	WOBURN	PLANT	AQ SYNTHETIC MINOR W/RESTR PTE < OR = 25% OF MAJ
33066	JIMS AUTO BODY	106 WINN ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
32775	KEANES AUTO BODY	93 BEDFORD RD	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
28563	LANNAN CHEVROLET	40 WINN ST	WOBURN	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
28563	LANNAN CHEVROLET	29 WINN ST	WOBURN	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
28563	LANNAN CHEVROLET	29 WINN ST	WOBURN	HANDLER	SMALL QUANTITY GENERATOR
316937	MAHONEYS GARDEN CENTER	200 WILDWOOD AVE	WOBURN	PLANT	RES APPLICATION APPROVALOVED
33328	MCCAULEY AUTO BODY	16 PARK ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
135844	MCDERMOTTROE GETTY WOBURN	229 LEXINGTON ST	WOBURN	FUEL DISPENSER	FUEL DISPENSER
132625	MEMTEK CORP	42 CUMMINGS PARK	WOBURN	GROUND	TEMP CLASS. GNDWATER REG OBJ. CLASS(MAJ,MIN,OTH) UNKNOWN
25926	MURPHY BILL WASTE OIL	263 SALEM ST	WOBURN	HANDLER	TRANSPORTER
131617	MURPHYS WASTE OIL SERVICES INC	252 SALEM ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
131617	MURPHYS WASTE OIL SERVICES INC	252 SALEM ST	WOBURN	HANDLER	TRANSFER, STORAGE AND/OR DISPOSAL FACILITY
131617	MURPHYS WASTE OIL SERVICES INC	252 SALEM ST	WOBURN	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
207259	NEW HORIZONS AT CHOATE	21 WARREN AVE	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
130727	NORTHERN RESEARCH & ENGINEERING	39 OLYMPIA AVE	WOBURN	PLANT	BELOW AQ REGULATED THRESHOLDS
130727	NORTHERN RESEARCH & ENGINEERING CORP	39 OLYMPIA AVE	WOBURN	DISCHARGE	MWRA SEWER CONNECTION
339167	NUGRAPHICS ETC INC	82 OLYMPIA AVENUE	WOBURN	DISCHARGE	MWRA SEWER CONNECTION
307027	ORGANIX INC	240 SALEM ST	WOBURN	HANDLER	SMALL QUANTITY GENERATOR
132356	OROURKES SER STA SS NUMBER D2R	183 CAMBRIDGE RD	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
132356	OROURKES SERVICE STATION INC	183 CAMBRIDGE RD	WOBURN	FUEL DISPENSER	FUEL DISPENSER
34794	PALMER JEAN CO INC	30 BRYANT ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
133825	PATRICK J GILL AND SONS INC	9 FOWLE ST	WOBURN	DISCHARGE	MWRA SEWER CONNECTION
133820	PELL ENGINEERING INC	12 GREEN ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
209909	PLEASANT STREET AL PRIME	117 PLEASANT ST	WOBURN	FUEL DISPENSER	FUEL DISPENSER
318811	PRIME AUTO	117 PLEASANT ST	WOBURN	HANDLER	NON-NOTIFIER HW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
303679	PROSCIENCE ANALYTICAL SERVICES INC	22 CUMMINGS PARK	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
282684	PSS IMAGING INC	22-8 PROSPECT ST	WOBURN	TRANSP	TRANSPORTER

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
340828	RANELLI AUTO BODY	111 REAR SALEM STREET	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
340828	RANELLI AUTO BODY	111 REAR SALEM STREET	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
52876	RIVINIUS & SONS INC	255 SALEM ST	WOBURN	PLANT	AQ NATURAL MINOR W/ PTE < OR = 25% OF MAJ
52955	ROHTSTEIN CORP	70 OLYMPIA AVE	WOBURN	DISCHARGE	MWRA SEWER CONNECTION
30880	SCHNIDER BROS AUTO BODY INC	275R SALEM ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
331396	SEROPTIX	82 CUMMINGS PARK	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
325896	SHELL 137894	293 CAMBRIDGE ST	WOBURN	FUEL DISPENSER	FUEL DISPENSER
323018	SYNTONIX PHARMACEUTICALS INC	65 CUMMINGS PARK	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
323018	SYNTONIX PHARMACEUTICALS INC	65 CUMMINGS PARK	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
334143	TANK CONTRACTING	104 WINN STREET	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
31268	TRACYS AUTO SALES SERVICE INC	5 HARRISON AVE	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
117577	VACUUM BARRIER CORP	4 BARTEN LN	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
117577	VACUUM BARRIER CORP	4 BARTEN LN	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
37396	VALET CLEANERS INC	182 CAMBRIDGE RD	WOBURN	HANDLER	SMALL QUANTITY GENERATOR
265251	WA KRAFT	199 WILDWOOD ST	WOBURN	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
265251	WA KRAFT	199 WILDWOOD ST	WOBURN	HANDLER	SMALL QUANTITY GENERATOR
297195	WALGREENS #2309	175 MAIN ST	WOBURN	DISCHARGE	MWRA SEWER CONNECTION
264358	WHOLESALE PRINTING	2 CEDAR ST	WOBURN	HANDLER	NON-NOTIFIER HW FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED
130711	WINFIELD BROOKS CO INC	70 CONN AT FOWLE ST	WOBURN	TURA REPORTER	LARGE QUANTITY TOXIC USER
130711	WINFIELD BROOKS CO INC	70 CON & FOWLE STS	WOBURN	HANDLER	SMALL QUANTITY GENERATOR
286355	WOBURN CAR WASH INC	75 MAIN ST	WOBURN	FUEL DISPENSER	FUEL DISPENSER
286355	WOBURN CAR WASH INC	75 MAIN ST	WOBURN	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
133808	WOBURN CLEANERS	6 MONTVALE AVE	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
285937	WOBURN DAILY TIMES	ONE ARROW DR	WOBURN	DISCHARGE	MWRA SEWER CONNECTION
279466	WOBURN DPW	N. WARREN ST	WOBURN	HANDLER	SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
286617	WOBURN FOREIGN AUTO BODY	80 OLYMPIA AVE	WOBURN	PLANT	NON-NOTIFIER AQ FAC THAT IS SUBJ TO REGS BUT NOT PERMITTED

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
2947	WOBURN FOREIGN MOTORS INC	394 WASHINGTON ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
2947	WOBURN FOREIGN MOTORS INC	394 WASHINGTON ST	WOBURN	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
365302	WOBURN GAS & SERVICE INC	545 MAIN ST	WOBURN	FUEL DISPENSER	FUEL DISPENSER
365302	WOBURN GAS & SERVICE INC	545 MAIN ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
365302	WOBURN GAS & SERVICE INC	545 MAIN ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
262959	WOBURN PRINTING COMPANY	25 EVERETT ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
34772	WOBURN SCREEN MACHINE PRODUCTS	10 JOHN ST	WOBURN	HANDLER	VERY SMALL QUANTITY GENERATOR
178381	WOBURN SQUARE SERVICE	23 PLEASANT ST	WOBURN	FUEL DISPENSER	FUEL DISPENSER
124608	CFC ASSOCIATES INC	11 CAMBRIDGE ST	BURLINGTON	TURA REPORTER	LARGE QUANTITY TOXIC USER
191617	HARVARD COMMUNITY HEALTH PLAN CENTER	20 WALL ST	BURLINGTON	DISCHARGE	MWRA SEWER CONNECTION
305135	HERB CHAMBERS HONDA	33 CAMBRIDGE ST	BURLINGTON	HANDLER	LARGE QUANTITY GENERATOR - WASTE OIL/PCBS ONLY
305135	HERB CHAMBERS HONDA	33 CAMBRIDGE ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR
316345	IAN COMMUNICATIONS GROUP	13 RAY AVE	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR

DEP FACILITY NUMBER	FACILITY NAME	STREET ADDRESS	TOWN	PERMITTED ACTIVITY	ACTIVITY CLASS
130446	LAHEY HITCHCOCK MEDICAL CENTER	41 MALL RD	BURLINGTON	HANDLER	SMALL QUANTITY GENERATOR
133586	NORTHEAST CONSTRUCTION PRODUCTS CO	64 CAMBRIDGE ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR
338469	POWERCELL CORPORATION	99 SOUTH BEDFORD STREET	BURLINGTON	DISCHARGE	MWRA SEWER CONNECTION
130451	RAYTHEON SERVICE CO	2 WAYSIDE RD	BURLINGTON	HANDLER	SMALL QUANTITY GENERATOR
130451	RAYTHEON SERVICE COMPANY	2 WAYSIDE RD	BURLINGTON	DISCHARGE	MWRA SEWER CONNECTION
295396	RITZ CAMERA	95 MALL RD	BURLINGTON	HANDLER	SMALL QUANTITY GENERATOR
295396	RITZ CAMERA	95 MALL RD	BURLINGTON	HANDLER	SMALL QUANTITY GENERATOR
32170	SKI MARKET THE	34 CAMBRIDGE ST	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR
332192	VERIZON MASSACHUSETTS	51 SOUTH BEDFORD ST	BURLINGTON	PLANT	AQ SYNTHETIC MINOR W/RESTR PTE < OR = 25% OF MAJ
133587	VISIDYNE INC	10 CORPORATE PL	BURLINGTON	HANDLER	VERY SMALL QUANTITY GENERATOR

UNDERGROUND STORAGE TANKS WITHIN WOBURN'S WATER SUPPLY PROTECTION AREAS

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
183 CAMBRIDGE ROAD TRUST	183 CAMBRIDGE RD	WOBURN	GAS STATION	8000	GASOLINE
183 CAMBRIDGE ROAD TRUST	183 CAMBRIDGE RD	WOBURN	GAS STATION	6000	GASOLINE
183 CAMBRIDGE ROAD TRUST	183 CAMBRIDGE RD	WOBURN	GAS STATION	6000	GASOLINE
74 CUMMINGS PARK	74 CEDAR ST	WOBURN	INDUSTRIAL	4750	GASOLINE
A L PRIME ENERGY INC	117 PLEASANT ST	WOBURN	GAS STATION	500	WASTE OIL
A L PRIME ENERGY INC	117 PLEASANT ST	WOBURN	GAS STATION	4000	GASOLINE
A L PRIME ENERGY INC	117 PLEASANT ST	WOBURN	GAS STATION	4000	GASOLINE
ANILCA THERAPEUTICS	236 W CUMMINGS PK	WOBURN	INDUSTRIAL	500	WASTE OIL
ANILCA THERAPEUTICS	236 W CUMMINGS PK	WOBURN	INDUSTRIAL	7500	HAZARDOUS
ANILCA THERAPEUTICS	236 W CUMMINGS PK	WOBURN	INDUSTRIAL	7500	HAZARDOUS
CITY OF WOBURN POLICE DEPT	25 HARRISON AVE	WOBURN	MUNICIPAL	6000	GASOLINE
CITY OF WOBURN POLICE DEPT	25 HARRISON AVE	WOBURN	MUNICIPAL	1000	DIESEL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
DOLE & BAILEY INC	16 CONN ST	WOBURN	TRUCK/TRANSPORT	10000	DIESEL
FARRELL'S SERVICE CENTER	146 MAIN ST	WOBURN	GAS STATION	5000	GASOLINE
FARRELL'S SERVICE CENTER	146 MAIN ST	WOBURN	GAS STATION	5000	GASOLINE
FARRELL'S SERVICE CENTER	146 MAIN ST	WOBURN	GAS STATION	5000	GASOLINE
GETTY STATION	325 WASHINGTON ST	WOBURN	GAS STATION	10000	GASOLINE
GETTY STATION	325 WASHINGTON ST	WOBURN	GAS STATION	8000	GASOLINE
GETTY STATION	325 WASHINGTON ST	WOBURN	GAS STATION	6000	GASOLINE
GIBBS SERVICE STATION	107 WINN ST	WOBURN	GAS STATION	10000	GASOLINE
GIBBS SERVICE STATION	107 WINN ST	WOBURN	GAS STATION	10000	GASOLINE
GIBBS SERVICE STATION	107 WINN ST	WOBURN	GAS STATION	10000	GASOLINE
GINN OIL COMPANY	57 WINN ST	WOBURN	PETROLEUM DISTR	10000	FUEL OIL
GINN OIL COMPANY	57 WINN ST	WOBURN	PETROLEUM DISTR	10000	FUEL OIL
GINN OIL COMPANY	57 WINN ST	WOBURN	PETROLEUM DISTR	10000	FUEL OIL

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
GINN OIL COMPANY	57 WINN ST	WOBURN	PETROLEUM DISTRIBUTOR	10000	FUEL OIL
GINN OIL COMPANY	57 WINN ST	WOBURN	PETROLEUM DISTRIBUTOR	10000	GASOLINE
GINN OIL COMPANY	57 WINN ST	WOBURN	PETROLEUM DISTRIBUTOR	10000	GASOLINE
GINN OIL COMPANY	57 WINN ST	WOBURN	PETROLEUM DISTRIBUTOR	10000	FUEL OIL
GINN OIL COMPANY	57 WINN ST	WOBURN	PETROLEUM DISTRIBUTOR	10000	FUEL OIL
GINN OIL COMPANY	57 WINN ST	WOBURN	PETROLEUM DISTRIBUTOR	6250	DIESEL
GINN OIL COMPANY	57 WINN ST	WOBURN	PETROLEUM DISTRIBUTOR	1500	
GINN OIL COMPANY	57 WINN ST	WOBURN	PETROLEUM DISTRIBUTOR	12000	GASOLINE
MCDERMOTTROE GETTY INC	229 LEXINGTON ST	WOBURN	GAS STATION	4000	GASOLINE
MCDERMOTTROE GETTY INC	229 LEXINGTON ST	WOBURN	GAS STATION	4000	GASOLINE
MCDERMOTTROE GETTY INC	229 LEXINGTON ST	WOBURN	GAS STATION	3000	GASOLINE
MCDERMOTTROE GETTY INC	229 LEXINGTON ST	WOBURN	GAS STATION	3000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
OLLIES SERVICE CENTER	310 MAIN ST	WOBURN	GAS STATION	6280	GASOLINE
OLLIES SERVICE CENTER	310 MAIN ST	WOBURN	GAS STATION	6280	GASOLINE
OLLIES SERVICE CENTER	310 MAIN ST	WOBURN	GAS STATION	6280	GASOLINE
ROHTSTEIN CORPORATION	70 OLYMPIA AVE	WOBURN	TRUCK/TRANSPORT	10000	DIESEL
SEVEN WALNUT HILL PARK REALTY ST	7 WALNUT HILL PK	WOBURN	TRUCK/TRANSPORT	500	WASTE OIL
SHELL SERVICE STATION	293 CAMBRIDGE ST	WOBURN	GAS STATION	6000	GASOLINE
SHELL SERVICE STATION	293 CAMBRIDGE ST	WOBURN	GAS STATION	8000	GASOLINE
SHELL SERVICE STATION	293 CAMBRIDGE ST	WOBURN	GAS STATION	10000	GASOLINE
SHELL SERVICE STATION	293 CAMBRIDGE ST	WOBURN	GAS STATION	1000	WASTE OIL
WINFIELD BROOKS COMPANY INC	70 CONN ST	WOBURN	INDUSTRIAL	5050	HAZARDOUS
WINFIELD BROOKS COMPANY INC	70 CONN ST	WOBURN	INDUSTRIAL	5050	HAZARDOUS
WINFIELD BROOKS COMPANY INC	70 CONN ST	WOBURN	INDUSTRIAL	5076	HAZARDOUS
WOBURN CAR WASH INC	75 MAIN ST	WOBURN	GAS STATION	10000	GASOLINE

FACILITY NAME	ADDRESS	TOWN	DESCRIPTION	CAPACITY (GAL)	CONTENTS
WOBURN CAR WASH INC	75 MAIN ST	WOBURN	GAS STATION	10000	GASOLINE
O'KEEFFE CITGO SERVICE INC	1012 MAIN ST	WINCHESTER	SERVICE STATION	20000	GASOLINE
VERIZON MASSACHUSETTS	954 MAIN ST	WINCHESTER	UTILITIES	2000	DIESEL
VERIZON MASSACHUSETTS	954 MAIN ST	WINCHESTER	UTILITIES	4000	DIESEL
SHELL SERVICE STATION	330 WOBURN ST	LEXINGTON	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION	330 WOBURN ST	LEXINGTON	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION	330 WOBURN ST	LEXINGTON	GAS STATION	12000	GASOLINE
SHELL SERVICE STATION	330 WOBURN ST	LEXINGTON	GAS STATION	1000	WASTE OIL

FOR MORE INFORMATION ON UNDERGROUND STORAGE TANKS, VISIT THE MASSACHUSETTS DEPARTMENT OF FIRE SERVICES WEB SITE:
[HTTP://WWW.STATE.MA.US/DFS/UST/USTHOME.HTM](http://www.state.ma.us/dfs/ust/usthome.htm)

NOTE: THIS APPENDIX INCLUDES ONLY THOSE FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA(S) THAT MEET STATE REPORTING REQUIREMENTS AND REPORT TO THE APPROPRIATE AGENCIES. ADDITIONAL FACILITIES LOCATED WITHIN THE WATER SUPPLY PROTECTION AREA(S) SHOULD BE CONSIDERED IN LOCAL DRINKING WATER SOURCE PROTECTION PLANNING.

APPENDIX B – Table Of Tier Classified Oil And/Or Hazardous Material Sites Within Woburn Water Supply Protection Areas

DEP’s Datalayer Depicting Oil And/Or Hazardous Material (OHM) Sites Is A Statewide Point Data Set That Contains The Approximate Location Of Known Sources Of Contamination That Have Been Both Reported And Classified Under Chapter 21E Of The Massachusetts General Laws. Location Types Presented In The Layer Include The Approximate Center Of The Site, The Center Of The Building On The Property Where The Release Occurred, The Source Of Contamination, Or The Location Of An On-Site Monitoring Well. Although This Assessment Identifies OHM Sites Near The Source Of Your Drinking Water, The Risks To The Source Posed By Each Site May Be Different. The Kind Of Contaminant And The Local Geology May Have An Effect On Whether The Site Poses An Actual Or Potential Threat To The Source.

The DEP’s Chapter 21E Program Relies On Licensed Site Professionals (LSPs) To Oversee Cleanups At Most Sites, While The DEP’s Bureau Of Waste Site Cleanup (BWSC) Program Retains Oversight At The Most Serious Sites. This Privatized Program Obliges Potentially Responsible Parties And LSPs To Comply With DEP Regulations (The Massachusetts Contingency Plan – MCP), Which Require That Sites Within Drinking Water Source Protection Areas Be Cleaned Up To Drinking Water Standards.

For More Information About The State’s OHM Site Cleanup Process To Which These Sites Are Subject And How This Complements The Drinking Water Protection Program, Please Visit The BWSC Web Page At [Http://Www.Streetate.Ma.Us/Dep/Bwsc](http://www.streetate.ma.us/dep/bwsc). You May Obtain Site -Specific Information Two Ways: By Using The BWSC Searchable Sites Database At [Http://:Www.Streetate.Ma.Us/Dep/Bwsc/SitellStreet.Htm](http://www.streetate.ma.us/dep/bwsc/sitellstreet.htm), Or You May Visit The DEP Regional Office And Review The Site File. These Files Contain More Detailed Information, Including Cleanup Status, Site History, Contamination Levels, Maps, Correspondence And Investigation Reports, However You Must Call The Regional Office In Order To Schedule An Appointment To View The File.

The Table Below Contains The List Of Tier Classified Oil And/Or Hazardous Material Release Sites That Are Located Within Your Drinking Water Source Protection Area.

Table 1: Bureau Of Waste Site Cleanup Tier Classified Oil And/Or Hazardous Material Release Sites (Chapter 21E Sites) - Listed By Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
3-0000475	50 Sturgis Street	Woburn	--
3-0000479	Aberjona River Valley	Woburn	--
3-0000534	256 Salem Street	Woburn	Oil
3-0000594	60 Olympia Avenue	Woburn	Hazardous Material
3-0001146	278 Salem Street	Woburn	--
3-0001423	Washington Street	Woburn	Oil
3-0001424	15 Olympia Avenue	Woburn	Oil
3-0002198	252 Salem Street	Woburn	--

RTN	Release Site Address	Town	Contaminant Type
3-0002256	50 High Street	Woburn	--
3-0003951	100 Cambridge Street	Burlington	Oil
3-0004067	325 Washington Street	Woburn	Oil
3-0004250	183 Cambridge Street	Woburn	Oil
3-0010691	263 Salem Street	Woburn	Oil And Hazardous Material
3-0012647	344-400 Cambridge Street	Woburn	Hazardous Material
3-0012279	295 Salem Street	Woburn	Oil
3-0012942	3 Green Street	Woburn	Oil
3-0013604	75 Main Street	Woburn	Oil And Hazardous Material
3-0015002	50 High Street	Woburn	Oil
3-0018789	39 Cedar Street	Woburn	Oil And Hazardous Material
3-0018820	71 Main Street	Woburn	Oil
3-0019134	57 Winn Street	Woburn	Oil
3-0019909	57 Winn Street	Woburn	Oil

For more location information, please see the attached map. The map lists the release sites by Release Tracking Number (RTN).