



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.

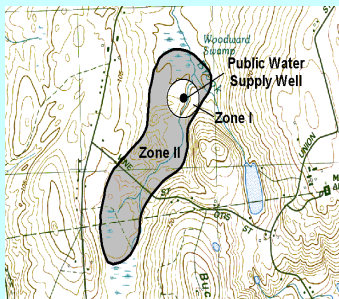
Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

#### **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](http://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:

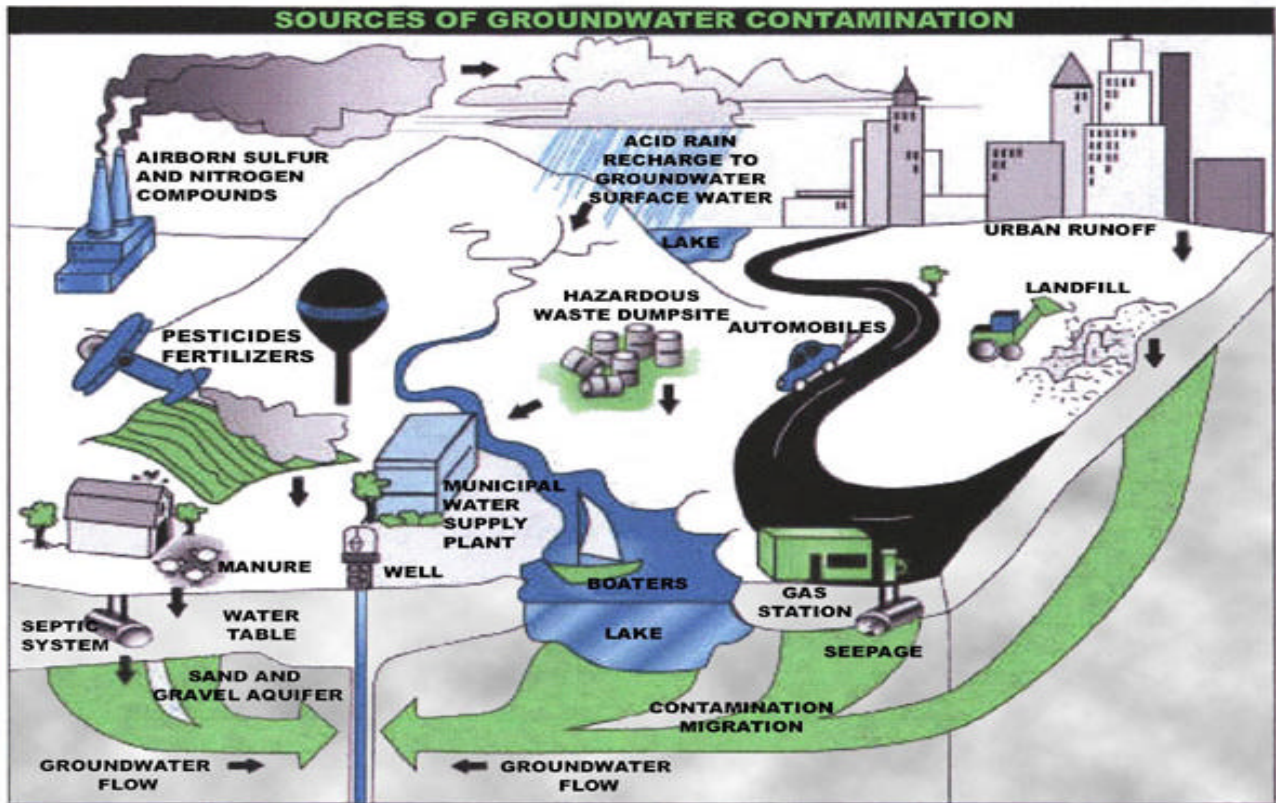
- ◆ **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained, they can be a potential source of microbial contamination.
- ◆ **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](http://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.

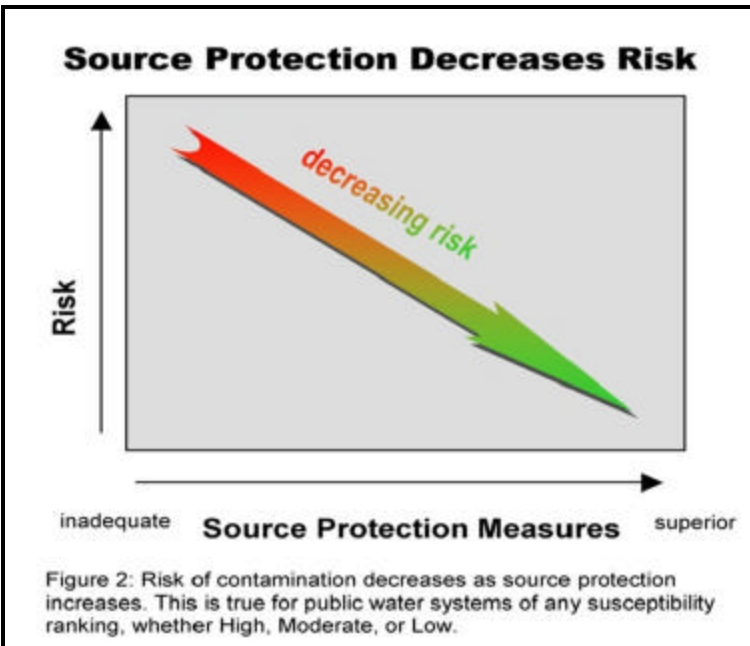
**Transportation Corridor Recommendations:**

- ✓ 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
<b>Commercial</b>			
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
<b>Residential</b>			
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
<b>Miscellaneous</b>			
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
<b>Miscellaneous</b>			
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><b>Notes:</b></p> <ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.</li> </ol> <p>* <b>THREAT RANKING</b> - 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>.

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. 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](http://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.

<b>Protection Measures</b>	<b>Status</b>	<b>Recommendations</b>
<b>Zone I</b>		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	<b>YES</b>	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?	<b>NO</b>	Economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	<b>YES</b>	Continue routine inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	<b>NO</b>	Continue monitoring for non-water supply activities in Zone Is that may have potential impact on wells .
<b>Municipal Controls</b> (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21 (2)?	<b>NO</b>	Work with the Town of Wellesley to adopt a Groundwater Protection General By-law that includes Wellesley College Zone II. Refer to <a href="http://www.state.ma.us/dep/brp/dws/">www.state.ma.us/dep/brp/dws/</a> for model by-laws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	<b>N/A</b>	
<b>Planning</b>		
Does the PWS have a Wellhead Protection Plan?	<b>YES</b>	Included in Master Plan. Review "Developing a Local Wellhead Protection Plan" available at: <a href="http://www.state.ma.us/dep/brp/dws/">www.state.ma.us/dep/brp/dws/</a> for additional information.
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	<b>YES</b>	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?	<b>N/A</b>	
Does the Board of Health conduct inspections of commercial and industrial activities?	<b>N/A</b>	Continue in-house and third-party inspections.
Does the PWS provide wellhead protection education?	<b>YES</b>	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).