



Source Water Assessment Program (SWAP) Report for Westhampton Elementary 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.

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

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Table 1: Public Water System (PWS) Information

<i>PWS Name</i>	Westhampton Elementary School
<i>PWS Address</i>	Kings Highway
<i>City/Town</i>	Westhampton, Massachusetts
<i>PWS ID Number</i>	1331007
<i>Local Contact</i>	Mr. Donald MacLeod, Principal
<i>Phone Number</i>	413-528-4015

<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	1331007-01G	180	467	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

Westhampton Elementary School is a rural, elementary school located on the south side of Kings Highway in Westhampton. The school student and staff population is approximately 175 people per day and is served by a single potable supply well (Well #1) located north of Hathaway Road.

The well has a Zone I protective radius of 180 feet and an Interim Wellhead Protection Area (IWPA) radius of 467 feet based on pumping test data and Zone I restrictions. The well was tested at a rate of 2.8 gallons per minute (gpm) under the New Source Approval Process and was granted an approved withdrawal rate of 3,024 gallons per day (2.1 gpm). Well #1 is a 6-inch diameter well drilled to a depth of approximately 405 feet below

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).

ground. The driller's log states that sandy glacial till and boulders were encountered from ground level to approximately 85 feet below ground, where bedrock was encountered. The driller logged the bedrock as granite and sandstone to the final well depth. However, the geologic map of the area states that the bedrock is primarily a phyllite and carbonaceous schist with quartz and quartz marble intrusions of the Gile Formation dating from the Lower Devonian. One hundred twelve feet of casing was grouted into place with approximately 24-inches of casing above ground. The water is treated by aeration for removal of radon, which naturally occurs in some water. You may request additional information regarding the quality of the water, from the local contact listed in Table 1.

Please refer to the attached maps of the Zone Is and IWPAs and Table 2 for additional assessment information.

2. Discussion of Land Uses in the Protection Areas

There are a few land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Residential Uses in IWPA**
2. **Passive Recreation in Zone I**

The well is located in an aquifer with a high vulnerability to contamination due to the absence of a significant hydrogeologic barrier to prevent contaminant migration. 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. **Residential Uses in the IWPA** – Two residences are located within the IWPA of the well. Normal residential activities pose minimal threat to the water quality of the public water supply as well as their own private supply provided, they are aware of the potential hazards of household waste, lawn care chemicals and misuse of septic systems and utilize best management practices. The properties are topographically downhill from the well site.

Recommendations:

- ✓ Provide information to residents about the potential hazards of household chemicals, lawn care chemicals and fertilizers. Provide information on Best Management Practices (BMPs) for the use of fertilizer lawn care, pesticides and household hazardous waste.

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Residential properties	No	Yes	Moderate	Household hazardous waste, lawn and septic systems.
Passive Recreation	Yes	Yes	Low	Evidence of low frequency passive activity.

- -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/de/p/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, such as clay that resists penetration by water.

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

- ✓ Provide educational outreach to residents regarding septic system maintenance and disposal practices.

2. **Passive Recreation in Zone I and IWPA** – Well #1 is fairly well protected and meets DEP's restrictions that only allow water supply related activities through the Zone I. There is some evidence of passive recreation through the Zone I and the IWPA along a nearby trail. Passive recreation poses minimal threat provided access to the wellhead is prevented.

Recommendations:

- ✓ Conduct routine inspections of the wellhead and monitor for activities near the wellhead.
- ✓ If there is evidence of unauthorized access to the wellhead, consider fencing off the wellhead area. Fencing for the wellhead is an eligible project under the Wellhead Protection grant program. (See Funding below).
- ✓ Protective collars (either concrete or earthen) around the wellhead should slope away from the casing to prevent surface runoff from infiltrating along the casing.

Other activities that were noted during the assessment were the Westhampton Landfill and the multiple earth removal operations. The landfill and the gravel mining operations appear to be located down and/or cross gradient to the well.

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. The Westhampton Elementary School is commended for current protection measures.

Please review and adopt the key recommendations listed above and as follows:

Zone I and IWPA:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Conduct regular inspections of the Zone I. Look for evidence of unauthorized access.
- ✓ Monitor activities and if there is evidence of increased activity or access, consider gating the wellhead.
- ✓ Post drinking water supply sign at the intersection of Hathaway Road and Kings Highway.
- ✓ Provide information to residents about the potential hazards of household chemicals, lawn care chemicals and fertilizers.
- ✓ Provide information on Best Management Practices (BMPs) for the use of fertilizer lawn care, pesticides and household hazardous waste.
- ✓ Provide educational outreach to residents regarding septic system maintenance and disposal practices.

Training and Education:

- ✓ Post drinking water protection area signs at key visibility locations such as at the intersection of Hathaway Road and Kings Highway.
- ✓ Incorporate groundwater education into school curriculum (K-6 curricula available; contact DEP for copies).

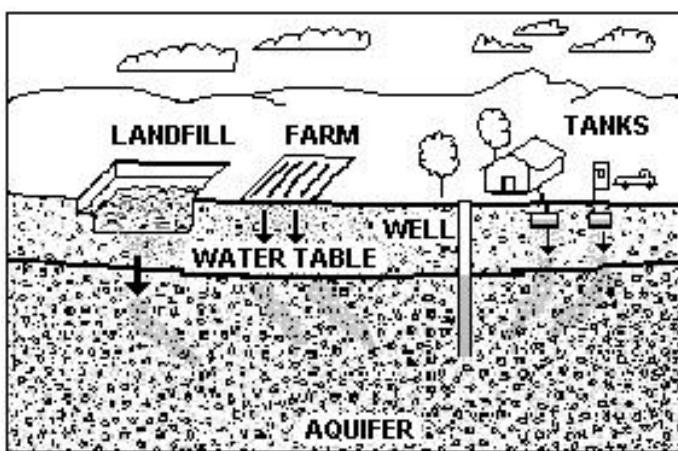


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Catherine V. Skiba in DEP's Springfield Regional Office at (413) 755-2119 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:

- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.
- ✓ Concrete or earthen pads should slope away from well to prevent surface runoff from ponding around the wellhead.

Planning:

- ✓ Work with local officials in Westhampton to include the school well's IWPA in an Aquifer Protection District Bylaw and to assist you in securing 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. Please note that each program year, on or about May 1 the Department posts a new Request for Response (RFR), grant application form. Generally, the applications are due on or about June 30. 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.

3. Attachments

- Map of the Public Water Supply (PWS) Protection Area
- Recommended Source Protection Measures Fact sheet
- Your Septic System Brochure
- Healthy Schools Fact Sheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form