Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
For
Woodland Park

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 15, 2003

Table 1: Public Water System (PWS) Information

PWS Name	Woodland Park
PWS Address	Zoar Road
City/Town	Charlemont, Massachusetts
PWS ID Number	1053030
Local Contact	Elizabeth Paulsen
Phone Number	(413) 339-4083

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well No. 1	1053030-01G	235	578	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

Woodland Park is a mobile home park located in the town of Charlemont in the Berkshire foothills of northwestern Massachusetts. The park community has 25 homes and is served by a single water supply well located north of Zoar Road. The well is a 200-foot deep well presumed to be in bedrock with a 6-inch diameter casing. Charlemont does have a municipal wastewater treatment plant, but it does not serve this area of town. Therefore, the community is served by on-site septic disposal systems.

The Zone I is the area immediately around the well where only activities associated with

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).

supplying water or other non-threatening activities are allowed to occur. The Interim Wellhead Protection Area (IWPA) is a larger area that potentially contributes water to the well. The IWPA is only an interim protection area until an actual Zone II contribution area is delineated; the actual area of contribution to the wellhead may be larger or smaller then the IWPA. The well has a Zone I radius of 235 feet and an Interim Wellhead Protection Area radius of 578 feet.

Geologic mapping has the area immediately in the vicinity of the well designated as a potentially productive sand and gravel aquifer. The facility is located along the Deerfield River valley that is a deepened bedrock valley that is filled with sand and gravel that was likely deposited during the recession (melting) of glaciers some 14,000 to 18,000 years ago. Over time, the river reworked the deposits and recent alluvium is also present. Mapping indicates sand and gravel deposits of 50 to 100 feet in the immediate vicinity of the well and 0 to 50 feet in thickness immediately northwest of the facility where scarring from a previous sand and gravel-mining operation is apparent. Bedrock rises steeply to the north of the well to Coon Hill and Blueberry Peak usually indicative of thin overburden. Bedrock outcrops are mapped just northwest of the facility on Zoar Road. The bedrock is mapped as the Moretown Formation, a schist and amphibolite of the Rowe – Hawley Zone.

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 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.

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Driveways/road and parking areas	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Fuel Storage Above Ground	Yes	Yes	Moderate	Proper maintenance and upgrades to fuel oil tanks to prevent releases from occurring
Septic System	Yes	Yes	Moderate	See septic systems brochure in the appendix, relocate septic systems outside of Zone I
Lawn care/gardening	Yes	Yes	Moderate	Encourage residents in proper storage, disposal, and application of pesticides.
Railroad Tracks	No	Yes	High	Herbicides: over-application or improper handling; fuel storage, transported chemicals, and maintenance chemicals: leaks or spills

*** -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.

Key issues include:

1. **Non-conforming Zone I;**
2. **Residential Land Uses; and,**
3. **Railroad Tracks.**

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. **Non-conforming Zone I –** Currently, the well does not meet DEP's restrictions, which only allow water supply related activities or other non-threatening activities in Zone Is. The facility's Zone I contains driveways, roads, and residences. 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:

- ✓ Work with residents within Zone I to encourage the replacement of fuel oil or kerosene heat with propane heat and to properly remove the fuel oil/kerosene tanks from the residence if they do convert to an alternative heating source.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Direct driveway drainage in the Zone I away from the well.
- ✓ If possible relocate septic systems outside of the Zone I.

2. Residential Land Uses - 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.
- ➢ **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** – Catchbasins 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.

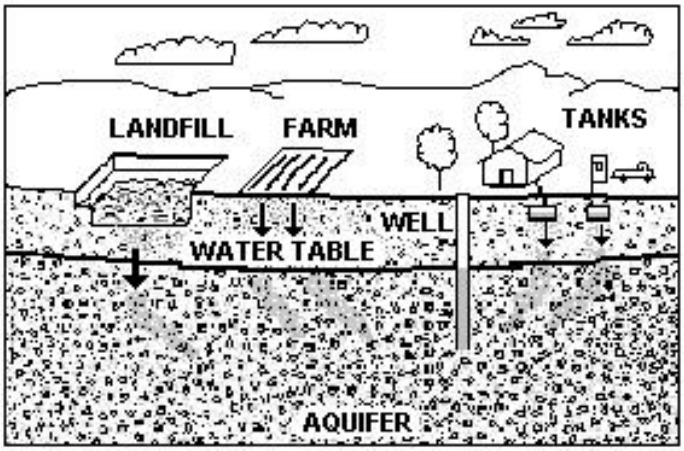

Figure 1: Example of how a well could become contaminated by different land uses and activities.

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 at the DEP drinking water program website www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.
- ✓ Promote BMPs for stormwater management and pollution controls.

3. Railroad tracks - Railroad tracks cross the southern portion of the IWPA. Over-application or improper handling of herbicides on the railroad property or right-of-way 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.

Recommendations:

- ✓ Work with local officials during their review of the railroad right-of-way Yearly Operating Plans to ensure that the portion of right-of-way within the Woodland Park IWPA is not sprayed with herbicides.
- ✓ Work with your local fire department to ensure that the IWPA is included in 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. Woodland Park is commended for having a securely locked cover over the well and diligent observance of activities on-site. Woodland Park should review and adopt the key recommendations above and the following:

Priority Recommendations:

- ✓ Encourage the replacement of fuel oil or kerosene heat with propane heat so that oil/kerosene tanks can be removed from the Zone I.
- ✓ If possible, relocate septic systems outside of the Zone I.

Zone I:

- ✓ Aboveground storage tanks that cannot be removed from your Zone I 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.
- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Restrict use of salt within Zone I and drain stormwater away from well.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Conduct regular inspections of the Zone I, check any aboveground tanks for leaks.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Buried fuel lines should be sleeved to help prevent leaks.

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.
- ✓ 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 Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on Woodland Park property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis.
- ✓ 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.

For More Information:

Contact Catherine Skiba in DEP's Springfield 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 made available to the public water supplier and town boards.

Planning:

- ✓ Work with local officials in town to develop an Aquifer Protection District and protective bylaws and include the IWPA in the District 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.

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. If funding is available, 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 Fact sheet
- Your Septic System Brochure
- Pesticide Use Fact sheet
- Source Protection Sign Order Form