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

PWS NAME	Wee Forest Folk
PWS Address	887 Bedford Road
City/Town	Carlisle, Massachusetts 01921
PWS ID Number	3051019
Local Contact	Deborah Bray
Phone Number	(978) 486-1008

Well Name	***Source ID#***	***Zone I (in feet)***	***IWPA (in feet)***	***Source Susceptibility***
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.

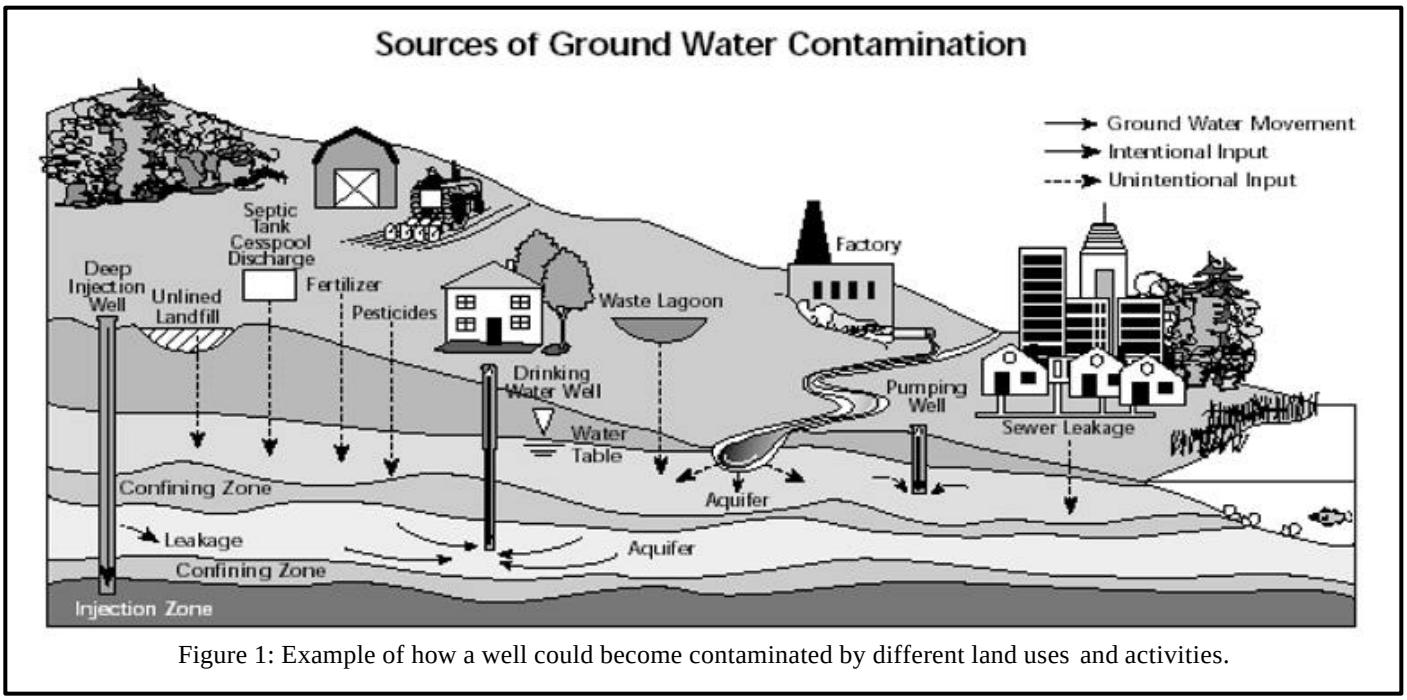

Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Anita Wolovick in DEP's 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