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

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 24, 2003

Table 1: Public Water System (PWS) Information

PWS Name	Southfield Water Trust
PWS Address	Norfolk Road - Southfield
City/Town	New Marlborough, Massachusetts
PWS ID Number	1203002
Local Contact	Mr. John Stevens
Phone Number	(413) 229-2726

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA*	*Source Susceptibility*
Well #2	1203002-01G	226	554	High

Introduction

We are all concerned about the quality of the water we drink. Drinking water supplies may be threatened by many potential sources of contamination, including septic systems, road deicing, 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 Southfield Water Trust is a small community water system located in Southfield, a village in the town of New Marlborough, southern Berkshire County. The system serves 33 residences, two municipal buildings and a commercial facility. The system's water is supplied by a single 6-inch diameter bedrock well that is located approximately 500 feet east of Norfolk Road behind the former whip shop and a residence. New Marlborough does not have a municipal sewer system and therefore, all wastewater is discharged to on-site septic systems.

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 Zone I is the protected area immediately surrounding the well, while the Interim Wellhead Protection Area (IWPA) provides an interim protection area for a water supply well when the actual (Zone II) recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The Zone I and Interim Wellhead Protection Area (IWPA) radii for this facility's well are 226 feet and 554 feet, respectively, based on metered water use from the system.

The overburden in the area is comprised of glacially derived till of varying thickness over the bedrock; limited stratified drift and alluvium are deposited along river and stream valleys. However, in the vicinity of the well, the surficial geology is mapped as till. The bedrock in the area is mapped as the metamorphic rocks of the Berkshire Highlands, primarily granite, biotite gneiss. Although there is some evidence of a protective barrier of till, the confining unit is highly variable and there is no evidence of a significant and continuous protective barrier in the immediate vicinity of the well. Therefore, the Department has determined this well to have a high vulnerability to contamination due to the absence of a continuous hydrogeologic barrier throughout the recharge area that can prevent contaminant migration from land uses on the ground surface. Please refer to the attached map of the Zone I and IWPA.

Water from the well is not treated at this time prior to distribution. 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 at the website http://www.epa.gov/enviro/html/sdwis/sdwis_query.html, Envirofacts.

2. Discussion of Land Uses in the Protection Areas

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

Key issues include:

1. **Non-conforming Zone I;**
2. **Residential uses;**
3. **Transportation corridors;**
4. **Confirmed hazardous materials release sites;**
5. **Underground Storage Tanks (USTs); and**
6. **Hazardous materials storage.**

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Confirmed hazardous materials release sites	No	Yes	-	Contact DEP Bureau of Waste Site Cleanup for additional information.
Residential uses (high density)	Yes	Yes	Moderate	Use BMPs for household hazardous waste, heating fuel, septic system management, and lawn care and stormwater runoff.
Hazardous materials	Yes	Yes	High	Conduct inspects of facilities, encourage the use of BMPs and regulatory compliance. Coordination with emergency responders.
Transportation corridors	Yes	Yes	Moderate	Limit road salt usage and provide drainage downgradient from the well.
USTs/ASTs	No	Yes	High	Remove USTs or upgrade older tanks as is feasible. Monitor all deliveries.

*** -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.

The overall ranking of susceptibility to contamination for the source is high, based on the presence of at least one high threatening land use or activity in the Zone I and/or 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 non-threatening activities in Zone I. The facility's Zone I contains residential activities. Systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems. The ground immediately around the well casing has in the past been subject to slumping that would allow ponding of water around the casing. The Water Trust has corrected this problem but should be diligent in monitoring the area and maintaining adequate drainage.

Recommendations:

- ✓ Continue the current practice of monitoring activities in the Zone I and prohibiting, as is feasible, the use of pesticide, fertilizers and household hazardous materials.
- ✓ Continue to regularly physically inspect the casing and drainage around the well.

2. Residential Land Uses – The IWPA for Well #1 has high-density residential land and commercial use. 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 and accidents during delivery.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground and streams. 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. Visit the Nonpoint Source pollution web site for additional information at http://www.state.ma.us/dep/brp/wm/nonpoint.htm.

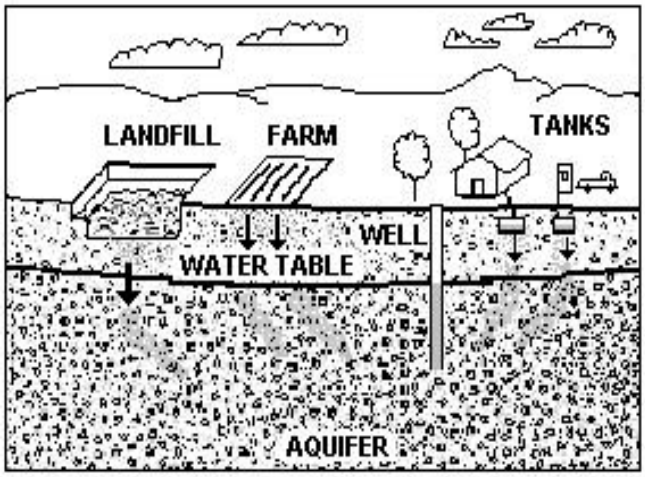

Figure 1: Example of how a well could become contaminated by different land uses and activities.

Residential Land Use Recommendations:

V 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.

3. Transportation corridors - Roads are potential sources of contamination due to deicing of roadways and leaks or spills of fuels and other hazardous materials during accidents.

Recommendation:

- ✓ Contact the local fire department to ensure that the Zone I and IWPA areas are included in Emergency Response Planning.

4. Underground and Aboveground Storage Tanks (UST/AST) – There are several USTs located within the IWPA and within close proximity to the IWPA of the well. Although in recent years some tanks have been removed or replaced, there are still both fuel oil and gasoline tanks. It is assumed that numerous homes have ASTs.

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.

Recommendations:

- USTs and ASTs in close proximity to the water supply should be closely monitored, especially during deliveries. Review stormwater flow direction and anticipate control of a potential spill during delivery.
- Work with the fire department to encourage removal and upgrade of tanks and fuel lines as appropriate.
- Continue to evaluate and consider a replacement well location, as is feasible.
- Any upgrades and modification to fuel storage facilities must meet current construction standards and be done consistent with Massachusetts plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding USTs.

5. Confirmed Hazardous Materials Release Site – There are confirmed hazardous materials release sites in the vicinity of the wellhead protection areas. Refer to Appendix C to review the site and refer all questions to the DEP Bureau of Waste Site Cleanup.

Recommendations:

- Monitor activities at these sites. Contact the Bureau of Waste Site Cleanup at 413-784-1100.

6. Hazardous Materials Storage and Use – Although there are no registered generators of hazardous waste, facilities within the IWPA such as the fire station and commercial facilities my store small quantities of hazardous materials. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be allowed to enter a floor drain leading directly to the ground or be discharged directly to the ground. Please refer to the Attachment for a list of registered USTs. Vehicle washing is an activity that should be monitored and there are guidelines for facilities that wash vehicles.

Hazardous Materials Storage and Use Recommendations:

- Aboveground storage tanks for hazardous products should be located on an impermeable surface and within containment in an area large enough to hold 110% of the liquid volume, should a spill occur.
- Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices including overfill protection. Any modifications to ASTs must be accomplished in a manner consistent with Massachusetts plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding ASTs.
- Review the vehicle washing guidance as appropriate.

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 source's susceptibility to contamination. The Southfield Water Trust is commended for its detailed knowledge of the land uses within the IWPA and efforts to protect the source. The water supplier should review and adopt the key recommendations above and the following:

Facilities Management:

- 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.
- Inspect the well casing and the integrity of the storage facilities regularly.

Planning:

- Work with your community to ensure further awareness and protection of the water supply.
- Work with local officials in town to develop Aquifer Protection District(s) and bylaws and include the facility IWPA in Aquifer Protection District bylaws if the town adopts such bylaws in the future.
- 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.
- Consider long term planning for the system that includes maintenance of the system.

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. The Department posts a new Request for Response for the Grant program (RFR) for each program year, if funds are available. Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at the DEP website: 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 encourage discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Areas
- Recommended Source Protection Measures Fact Sheet
- List of underground stotage tanks and confirm hazardous materials release sites

APPENDIX B:
REGULATED FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREAS

Underground Storage Tanks in are adjacent to protection areas

Facility Name	Address	Town	Description	Tank Type	Tank Leak Detection	Capacity (gal)	Contents
Southfield Store	Southfield - Norfolk Road	New Marlborough	Gasoline Dispenser	2 Wall	Interstitial Monitoring	1,000	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
Additional information provided by individual owners.

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 may be located within the water supply protection area(s) that should be considered in local drinking water source protection planning.

APPENDIX C – Table of Tier Classified Oil and/or Hazardous Material Sites within the 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/sitelist.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
1-0010911	Southfield – Norfolk Road	New Marlborough	Oil
1-0000777	Southfield – Norfolk Road	New Marlborough	

For more location information, please see the attached map. The map lists the release sites by RTN.