Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
For
Freetown/Lakeville Regional School District

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:
April 2004

Table 1: Public Water System (PWS) Information

PWS NAME	Freetown/Lakeville Regional School District
PWS Address	100 Howland Road
City/Town	Lakeville, MA 02347
PWS ID Number	4146016
Local Contact	Robert Souza
Phone Number	(508) 947-0530

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	01G	398	2560	high
Well #2	02G	398	2560	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
5. Appendix

1. Description of the Water System

The Freetown/Lakeville Regional School District receives its drinking water from two bedrock wells, Well #1 is located within the school building complex and Well #2 is located adjacent to the school. Well #1 has a Zone I of 398 feet and an Interim Wellhead Protection Area (IWPA) of 2560 feet. Well #2 also has a Zone I of 398 feet and an IWPA of 2560 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. 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

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).

Zone I and IWPA.
The wells serving the facility have 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. 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.

Key issues include:
1. **non-water supply activities in Zone I;**
2. **underground Storage Tank;**
3. **athletic fields;**
4. **vehicle parking and local roads; and**
5. **residential development.**

The overall ranking of susceptibility to contamination for the well is high, based on the presence at least one high threat within the Zone I and IWPA.

1. **Zone Is –** Currently, the wells do not meet DEP's Zone I regulations, which allow only water supply related activities in the Zone I and require that the land within the Zone I be owned or controlled by the public water system. The facility's Zone I contains part of the school building, underground storage of heating fuel, access roads and vehicle parking. 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:

✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
✓ Direct stormwater drainage outside of Zone I.
✓ Do not allow new non water supply activities within the Zone I.
✓ Ensure that all floordrains within the School meet Underground Injection Control Regulations 310 CMR 27.00.

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Potential Concern
underground storage tank	Yes	Yes	High	leaks and spills of contents
school	Yes	Yes	Moderate	solvents & other materials used in classrooms
parking lot	Yes	Yes	Moderate	stormwater runoff, spills
lawn/playing fields	No	Yes	Moderate	fertilizer and pesticide use
residential development	No	Yes	Moderate	runoff from lawns, septic systems, underground/above ground storage tanks
roads	No	Yes	Moderate	stormwater runoff, 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.

- ✓ Ensure that all laboratory wastes are disposed of properly.

1. **Underground Storage Tank (UST)-** An underground storage tank with fuel oil is located within the ZoneI of the water supply. If managed improperly, Underground Storage Tanks can be a potential source of contamination due to leaks or spills of the chemicals they store.

Recommendation:

- ✓ Any modifications to the UST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding USTs.
- ✓ The Department recommends that you inspect, maintain and replace or upgrade components of your heating system regularly. Inspect oil lines (i.e. furnace to tank) for corrosion or pitting and replace copper lines with lines encased in a protective sleeve or install UL listed oil safety valve to prevent leaks.
- ✓ During refilling of UST, ensure that the operator of the oil transport tanker does not leave the vehicle area while the UST is being filled.

2. **Athletic fields –** There are several athletic fields within the IWPA of the wells. Improper fertilizer and pesticide use is a potential contamination source for ground water wells

Recommendation:

- ✓ Use BMPs for applying, handling, and storing pesticides and fertilizers.
- ✓ Develop an integrated Pest Management (IPM)plan to reduce fertilizer and pesticide use. Visit http://www.state.ma.us/dfa/cpa/ipmplan.htm for information on developing an IPM plan.

3. **Vehicle parking and Local Roads –** School parking is within the Zone I. Local roads intersect the IWPA. Runoff and spills from vehicle parking and local roads can contaminate public drinking water wells.

Recommendation:

- ✓ Map stormwater drainage and direct drainage away from the Zone I.
- ✓ Do not use road salt in the Zone I.
- ✓ Limit use of deicing materials in IWPA.
- ✓ Continue to maintain contact with the Fire Department about spills.

4. **Residential Development –** There is residential development within the IWPA. Residential activities that pose a threat to drinking water wells include septic systems, lawn care and household hazardous materials including heating fuel storage.

Recommendation:

- ✓ Educate residents in the IWPA about water supply protection. Include material on septic system operation and maintenance, proper hazardous materials handling including heating fuel storage, and proper lawn care practices.

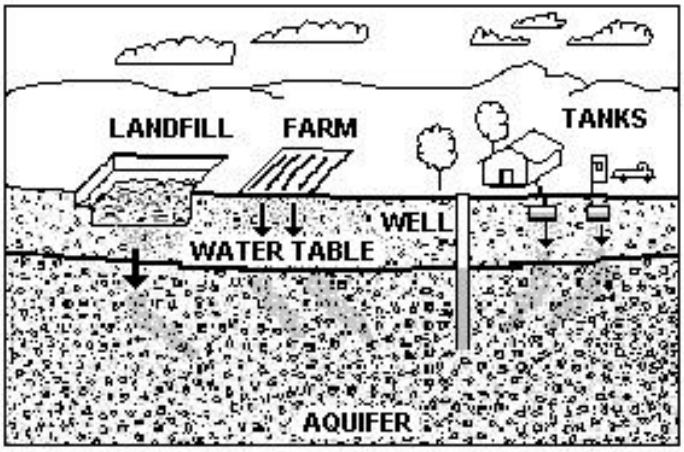

Figure 1: Example of how a well could become contaminated by different land uses and activities.

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. School officials should review and adopt the key recommendations above and the following:

For More Information:

Contact Isabel Collins in DEP's Lakeville Office at (508) 946-2726 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.

Priority Recommendations:

Zone I:

- ✓ Keep additional non-water supply activities out of the Zone I.
- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Continue regular inspections of the Zone I. Look for illegal dumping or evidence of vandalism.
- ✓ Use Best Management Practices (BMPs) and restrict activities that could pose a threat to the water supply.
- ✓ Keep road and parking lot drainage away from the well.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff. Post labels as appropriate on raw materials and hazardous waste.
- ✓ Incorporate groundwater education into school curriculum (K-6 and 7-12 curricula available; contact DEP for copies).
- ✓ Work with your community to ensure that stormwater runoff at the road is directed away from the well and is treated according to DEP guidance.

Facilities Management:

- ✓ Ensure that all floordrains within the School meet Underground Injection Control Regulations 310 CMR 27.00.

Planning:

- ✓ Work with local officials in town to include the facility's IWPA in the Aquifer Protection District Bylaw and to assist you in improving protection.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

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 that program. For additional information, please refer to DEP's web site. 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.

Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

5. Attachments

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