



Massachusetts Department of Environmental Protection Source Water Assessment and Protection (SWAP) Report For Island Terrace Nursing Home

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:
August 2004

Table 1: Public Water System (PWS) Information

PWS NAME	Island Terrace Nursing Home
PWS Address	57 Long Point Road
City/Town	Lakeville, MA 02347
PWS ID Number	4146004
Local Contact	Brenton Tolles
Phone Number	(508) 947-0151

Well Name	Source ID#	Zone I (in feet)	IWPA (in feet)	Source Susceptibility
Well #1	4146004-01G	225	753	High
Well #2	4146004-02G	225	753	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

Island Terrace Nursing Home receives its drinking water from two wells located just south and west of the facility. Each well has a Zone I radii of 225 feet and an Interim Wellhead Protection Area (IWPA) radii of 753 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 Zone Is and IWPAs.

The wells serving Island Terrace Nursing Home are treated for iron removal and hardness and are disinfected. The DEP requires public water suppliers to monitor the quality of

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 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 are 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. **nursing home facility;**
3. **floor drains;**
4. **septic system;**
5. **above ground storage tanks**
6. **cranberry bogs; and**
7. **roads and parking.**

The overall ranking of susceptibility to contamination for the well is high, based on the presence of high ranked threats within the water supply protection areas for the wells and the numerous land uses within the Zone Is.

1. **Zone Is** – Currently, the wells do not meet DEP's Zone I requirements, 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 Zone Is for Island Terrace Nursing Home contain: nursing home buildings, septic system components, above ground storage of diesel fuel, local roads, cranberry bogs and vehicle parking. Also, the public water supplier does not own or control all the land encompassed by the Zone Is. 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

- ✓ If possible, purchase or obtain a conservation restriction on the portion of the Zone I not owned by the nursing facility.

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Potential Concern
Nursing Home	Yes	Yes	Low	Medical wastes, hazardous materials and prescription drugs.
Floor Drains	Yes	Yes	High	Hazardous materials injected into groundwater.
Septic System	Yes	Yes	Moderate	Bacteria, improper disposal of hazardous materials
Above Ground Storage Tanks	Yes	Yes	Moderate	Leaks, spills
Cranberry Bogs	Yes	Yes	High	Pesticide and Fertilizer use
Road and Parking	Yes	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 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 that resists penetration by water.

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

- ✓ Remove all hazardous materials from the Zone I.
- ✓ Remove septic system components from Zone I.
- ✓ Direct stormwater drainage from roadways and parking to discharge outside of the Zone I.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

2. **Nursing Home Facility** – Activities associated with nursing homes that are of concern to drinking water supplies include medical wastes (including disposal of old prescription drugs) and hazardous materials used in operation and maintenance of institutional facilities.

Recommendations

- ✓ Ensure appropriate best management practices (BMPs) are in place for the handling and disposal of medical wastes.
- ✓ Ensure appropriate BMPs are in place for the handling and disposal of hazardous materials.

3. **Floor Drains** – It was noted during the assessment that three floor drains exist which discharge to the septic system. Discharges to the ground, septic systems or dry wells, are regulated by either the Title 5 regulations 310 CMR 15.000 or the Underground Injection Control (UIC) regulations 310 CMR 27.00. Only sanitary discharges (i.e. toilets, sinks, showers, laundry) are allowed to go into septic systems. Other discharges to the ground must meet the requirements of the UIC regulations.

Recommendation

- ✓ Ensure floor drain discharges meet UIC and Title 5 regulations. Contact Ken Pelletier of the DEP's UIC program at (617) 348-4014.

4. **Septic System** – The septic system for the nursing home is located within the Zone I and IWPA for the wells. Septic systems should be located outside of the Zone Is due to the threats associated with them. Septic system threats include microbial pathogens and chemical contamination due to improper disposal of hazardous materials and prescription drugs.

Recommendations

- ✓ Septic system components should be inspected and maintained on a regular basis. Continue to pump septic tank twice per year.
- ✓ Train staff on proper disposal of hazardous materials. Include custodial staff, groundskeepers, food preparation, nursing and certified operator.

5. **Above Ground Storage Tanks (ASTs)** – There are two ASTs with containment located in the nursing home basement. If managed improperly, above ground storage tanks can be a potential source contamination due to leaks or spills of the chemicals they store.

Recommendation

- ✓ Inspect and maintain the integrity of the containment structure.

6. **Agricultural activities** - There are several cranberry bogs within the Zone I and IWPA. It was noted during the assessment that the cranberry growers association does not apply fertilizers or pesticides. However, as is the case for many crops, the commercial production of cranberries usually requires input of fertilizer and pesticides. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed.

Recommendations

- ✓ Never use pesticides or fertilizers within the Zone I.

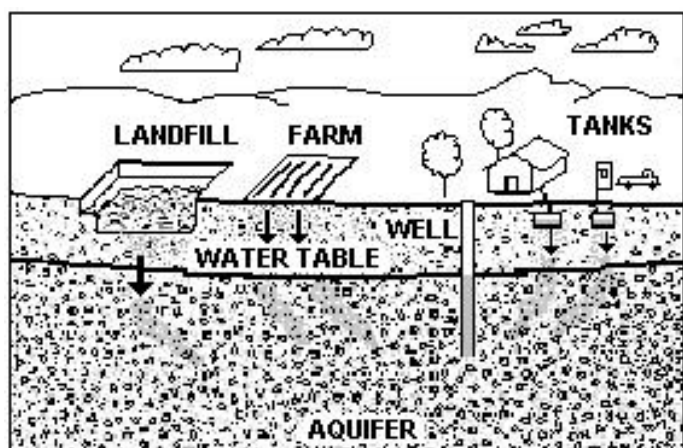


Figure 1: Example of how a well could become contaminated by different land uses and activities.

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 Use/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier and town boards.

- ✓ Ensure farmers in your protection areas are aware of your water supply and to encourage the use of a US Natural Resources Conservation Service farm plan to protect water supplies.
- ✓ If you discover that farmers within the protection area are using pesticides ensure they maintain a pesticide license or certification with the Massachusetts Department of Agricultural Resources (DAR).
- ✓ Inform farmers about grants and loans designed to protect surface and groundwater. See <http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPFct.pdf> for more information on the USDA Environmental Quality Incentives Program (EQIP). Information on MA DAR's Agricultural Environmental Enhancement Program (AEEP) is available on the web at <http://www.state.ma.us/dfa/programs/aEEP/>.

7. **Roads and Parking** – Roads and vehicle parking are located within the Zone I and IWPA. Runoff and spills from roads and parking areas can potentially contaminate public wells.

Recommendations

- ✓ Ensure drainage patterns are located, and discharge, away from the wells.
- ✓ Continue to maintain contact with the Fire Department about spills.

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 your wells' susceptibility to contamination. The Island Terrace Nursing Home is commended for upgrading the above ground tanks with containment. Nursing home officials should review and adopt the key recommendations described in this report.

Priority Recommendations

Zone I

- ✓ Keep additional non-water supply activities out of the Zone I.
- ✓ When possible remove 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.
- ✓ Post water supply protections signs in the Zone I and IWPA.
- ✓ Prohibit public access to the wells by locking facilities.
- ✓ Conduct 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.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.
- ✓ 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.
- ✓ Post drinking water protection area signs at key visibility locations.

Facilities Management

- ✓ Inspect and maintain the integrity of the containment structure for the ASTs.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis.

Planning

- ✓ Work with local officials in town to include the facility's IWPA in an 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

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/glpgrm.pdf>.

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
- Industrial Floor Drains brochure
- Source Protection Sign Order Form