

Source Water Assessment Program (SWAP) Report

For

Juniper Hill Apartments



Prepared by the
Massachusetts Department of
Environmental Protection,
Bureau of Resource Protection,
Drinking Water Program

Date Prepared:
June 29, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Juniper Hill Apartments
<i>PWS Address</i>	217 Sturbridge Street (Rte. 20)
<i>City/Town</i>	Charlton
<i>PWS ID Number</i>	2054004
<i>Local Contact</i>	Paul Vandale
<i>Phone Number</i>	(508) 885-5375

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	2054004-01G	100	419	Moderate

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.

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

Juniper Hill Apartments has nine buildings with four units in each building. The well for the facility is located in the woods to the west of the apartment buildings, about 15 feet from a stream/wetland. The well is 300 feet deep, and has a Zone I of 100 feet and an Interim Wellhead Protection Area (IWPA) of 419 feet. 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 water is treated by a cation exchange pressure softening unit to remove Iron and Manganese. For current information on monitoring results and treatment and a copy of the most recent Consumer Confidence Report please contact the Public Water System contact person listed above in Table 1.

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).

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. **Inappropriate activities in Zone I**
2. **Transmission Line Right of Way**
3. **Septic system; and**
4. **Rusted Tank.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of only moderate to low threat land uses or activities in the IWPA, as seen in Table 2.

1. **Zone I** – Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone I. The facility's Zone I contains an apartment building and parking area. The parking area is paved, and tenants are advised not to perform any form of vehicle maintenance or repairs in the parking lot. 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.

Recommendation:

- ✓ Continue to educate tenants about limiting activities within the Zone I.
- ✓ Keep all new non-water supply activities out of the Zone I.

2. **Transmission Line Right of Way within the IWPA** – A transmission line right of way crosses the IWPA. Over-application or improper handling of herbicides used for clearing the right-of-way is a potential source of contamination.

Recommendation:

- ✓ Work with local officials during their review of the right-of-way Yearly Operating Plans to ensure that the portion of right-of-way within the Juniper Hill Apartment IWPA is not sprayed with herbicides.

3. **Septic system** – The septic system for the apartment is located within the IWPA. If a septic system fails or is not properly maintained it could be a potential source of microbial contamination. Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the water supply.

Recommendations:

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

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Residential	Parking areas & access road	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
	Transmission line	No	Yes	Low	Herbicide use for clearing
	Septic System	No	Yes	Moderate	See attached septic systems brochure
	Roads	No	Yes	Moderate	Road salts, leaks from vehicles
	Stream	Yes	Yes	Low	
	Structure	Yes	Yes	----	Non-water supply structures in Zone I

* -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.

- ✓ Tenants and staff should be instructed on the proper disposal of spent household chemicals. Include custodial staff, groundskeepers, and certified operator.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.

4. **Rusted tank** - There is a rusted tank near the pumphouse. The tank appears to be empty, however, its contents in the past are not known. The tank is not in use at this time, and does not appear to be connected to anything. If managed improperly, tanks can be a potential contaminant source due to leaks or spills of the chemicals they store.

Recommendation:

- ✓ The tank should be removed immediately. Removal 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.

Implementing the following recommendations will reduce the system's susceptibility to contamination.

3. Protection Recommendations

Juniper Hills Apartments should review and adopt the following recommendations at the facility:

Zone I:

- ✓ Remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements. Please note that water systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying their system.
- ✓ Consider well relocation if Zone I threats cannot be mitigated. Please note that DEP permit approvals must be obtained prior to the installation of a new well.
- ✓ Do not use pesticides 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, and certified operator.
- ✓ Post drinking water protection area signs at key visibility locations

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/brp/dws/dwspubs.html.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

Planning:

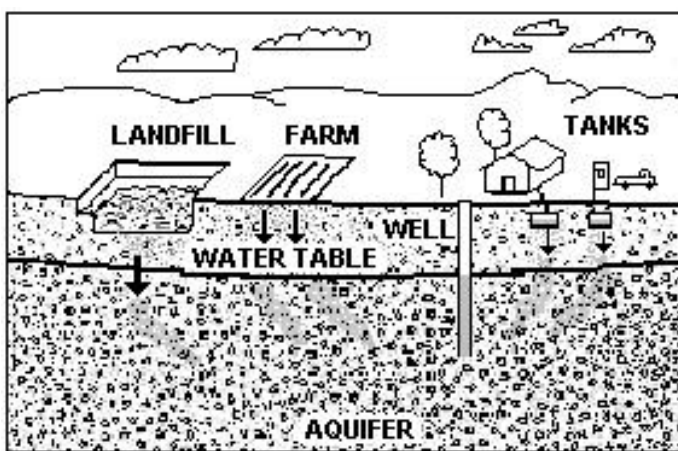


Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact **Josephine Yemoh-Ndi** in DEP's **Worcester Office** at **(508) 792-7650 x 5030** for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on DEP's web site at:
www.state.ma.us/dep/brp/dws.

- ✓ Work with local officials in Charlton to include the facility 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.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

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 Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Source Protection Sign Order Form

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 water department, town boards, the town library and the local media.