Source Water Assessment Program (SWAP) Report
For
HOLIDAY INN BOXBORO

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

Date Prepared:
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Table 1: Public Water System (PWS) Information

PWS NAME	HOLIDAY INN BOXBORO
PWS Address	ONE ADAMS PLACE
City/Town	BOXBORO
PWS ID Number	2037008
Local Contact	Debbie Bray
Phone Number	(978) 486-1008

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
WELL #1	2037008-01G	250	622	Moderate
WELL #2	2037008-02G	250	622	Moderate
WELL #3	2037008-03G	250	622	Moderate
WELL #4	2037008-04G	303	904	Moderate
WELL #5	2037008-05G	280	752	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.

Maintaining Your Good 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 sources of contaminant, 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 contaminant, 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 facility is served by five bedrock wells, at the following locations:
Well #1 (01G) & #5 (05G) are located approximately 15 feet apart, with well #5 to the east of well #1. In general well #1 and #5 are located to the northeast of the on-site building. Well #5 is a 6 inch diameter bedrock well drilled to a depth of 600 feet, and has a Zone I of 280 feet, and an IWPA of 752. Well #1 has a Zone I of 250 feet and IWPA of 622 feet.

Wells #2, #3 and #4 are located to the south of the on-site building. Wells # 2, and #3 each have a Zone I of 250 feet, and IWPA of 622 feet. Well #4 has a Zone I of 303 feet,

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).

and IWPA of 904 feet. Bedrock at the site is 32 feet below the surface of the ground, and competent bedrock is approximately 60 feet below the surface of the ground. Bedrock at the site is described as a biotite gneiss with some layer of granite gneiss, and is interpreted to belong to the Nashoba Formation. The wells are 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 wells serving the facility discharge into a 50,000 gallon underground atmospheric water storage tank. This tank is treated for corrosion control by aeration with venturi aerators with ultraviolet disinfection. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

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 Is;**
2. **Storm water drains;**
3. **Transportation corridor**
4. **Landscaping and lawn care;**
5. **Septic system; and**
6. **Wastewater treatment plant.**

The overall ranking of susceptibility to contamination for the wells is Moderate based on the presence of only moderate and low threat land use or activity in the IWPAs.

1. **Zone Is** - Currently, the wells do not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The facility's Zone Is contain the on-site building and parking spaces. 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:

✓ If the facility intends to continue utilizing the structures and parking areas in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.

2. Stormwater Drains – Stormwater drains are located within the IWPAs of the wells.

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

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Commercial	Stormwater drains	No	Yes	Low	IWPAs of all the wells except well #4
	Landscaping and lawn care	All	All	Moderate	Fertilizer and pesticide use
	Parking lot & road	All	All	Moderate	Limit road salt usage and provide drainage away from wells
	Wastewater Treatment Plant	No	Well #4	Moderate	Treatment Chemical or equipment maintenance materials
	Septic system	No	Well #4	Moderate	See Septic system Brochure in the appendix
	Transportation corridor	No	All	Moderate	Interstate 495
	Structures	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 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 stormwater drains discharge into a detention pond that is located to the west of the on-site structure, between Sheraton Road and Interstate 495. As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents.

Recommendations:

- ✓ Have the catch basins inspected, maintained, and cleaned on a regular schedule.
- ✓ Consider nonstructural techniques such as parking lot sweeping to reduce the amount of potential contaminants in storm water runoff. Additionally, the public water supplier may want to consider structural BMPs (e.g. stormwater swale, detention basin, etc.) as part of comprehensive storm water management plan for the site.

3. **Transportation corridor** - Route 495 is located within the IWPA of the wells. Interstate highways are potential sources of contamination due to salting of roadways and leaks or spills of fuels and other hazardous materials during accidents.

Recommendation:

- ✓ Contact local fire department to ensure that the IWPA is included in Emergency Response Planning

4. **Landscaping and lawncare** - Fertilizer is applied to the lawn that is located within the Zone I and IWPA. Fertilizers and pesticides, if improperly applied or stored, can be potential sources of contamination to the water supply.

Recommendations:

- ✓ Do not use fertilizers or pesticides in the Zone I.
- ✓ Use best management practices when applying fertilizer in the IWPA.

5. **Septic system** - The septic system for the facility is located within the IWPA of well #4. Septic systems can be a potential source of contamination if improperly managed. The water systems operator indicates that the septic system is closely monitored.

Recommendation:

- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.

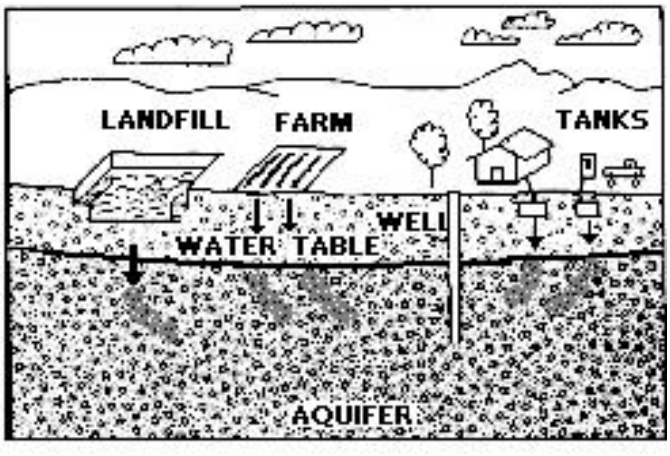

Figure 1: Example of how a well could become contaminated by different land uses and activities.

6. **Wastewater Treatment Plant** – The on-site wastewater treatment plant is located within the IWPA of well #4. Improper management of wastewater and spills, leaks, improper handling or storage of treatment plant chemicals, sludge, chemicals and equipment maintenance materials can potentially contaminate the water supply.

Recommendation:

- ✓ Maintain increased vigilance in Best Management Practices for the wastewater treatment plant due to its proximity to Well #3.

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

3. Protection Recommendations

Holiday Inn Boxboro should review and adopt the following recommendations at the facility:

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.

Copies of this assessment have been provided to the water department, town boards, and the local media.

Zone I:

- ✓ Keep non-water supply activities out of the Zone Is.
- ✓ Remove all non-water supply activities from the Zone Is 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 or store pesticides, fertilizers or road salt within 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 drinking water protection area signs at key visibility locations.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.

Planning:

- ✓ Work with local officials in Boxboro 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