Source Water Assessment Program (SWAP) Report For HALE MIDDLE SCHOOL

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

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Table 1: Public Water System (PWS) Information

PWS NAME	HALE MIDDLE SCHOOL
PWS Address	HARTLEY RD.
City/Town	STOW
PWS ID Number	2286005
Local Contact	JAMES DUCHARME
Phone Number	(978) 779-2257

Well Name	*Source ID#*	*Zone I (in feet)*	*Zone II*	*Source Susceptibility*
Well #1	2286005-O1G	280	Zone II	High

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 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. Attached Map of the Protection Areas

1. Description of the Water System

The well for the facility is located in a pumphouse, which is located to the northwest of the school building. The Hale Middle School well has a Zone I of 280 feet and an APPROVED Zone II. The well is located in a sand and gravel 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 Zone II in Table 1. The well serving the facility is treated with Sodium Hydroxide for corrosion control. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above.

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. **Underground Storage Tank;**
3. **Septic system;**
4. **Stormwater drain; and**
5. **Utility substation transformer.**

The overall ranking of susceptibility to contamination for the well is High, based on the presence of at least one high threat land use(s) or activity in the IWPA.

1. **Zone I** - Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone I. Further more, the school does not own or control the entire Zone I. The abutter has been notified of the well location. The school's Zone I contains a portion of the school building and some parking areas. 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.

2. **Underground Storage Tank –** A 10,000 gallon double walled fiberglass underground storage tank with leak detection containing fuel oil is located within the Zone II. An UST in the IWPA or Zone II is of concern due to the potential threat posed by the release of its contents, which could contaminate the water supply if managed improperly.

3. **Septic systems** – The septic system is located within the Zone II, and is pumped annually. If improperly maintained, septic systems fail and potentially contaminate groundwater and the water supply. If chemicals are disposed of in the septic system and or commercial cleaners are used improperly to clean the septic system, the chemicals could potentially contaminate the water supply. Staff should be instructed on proper disposal of hazardous materials.

4. **Stormwater drains –** The stormwater drain lies within the Zone II and drains away from the Zone I. As flowing stormwater travels, it picks up debris and contaminants from the parking areas and road, that can potentially contaminate the water supply.

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

Facility Type	Potential Contaminant Sources	Zone I	Zone II	Threat	Comments
School	Parking lot, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
	Underground storage tank	No	Yes	High	#2 fuel oil
	Septic System	No	Yes	Moderate	See septic systems brochure in the appendix
	Stormwater drain	No	Yes	Low	Located at the main entrance to the school building
	Utility substation transformer	No	Yes	Low	

*** -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.

5. **Utility substation transformer –** A transformer is located on a concrete pad within the IWPA. The older version transformers contain polychlorinated biphenyl (PCB). In the absence of the concrete pad, the transformer could leak PCBs, which could potentially contaminate the water supply.
   Recommendations:
   - ✓ For utility transformers that may contain PCBs, contact the utility company 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.

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

3. Protection Recommendations

Hale Middle School should review and adopt the following recommendations at the facility:

Zone I:

- ✓ Keep 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. 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.
- ✓ 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.

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.
- ✓ Incorporate groundwater education into school curriculum. See curricular K-6 and 7-12.

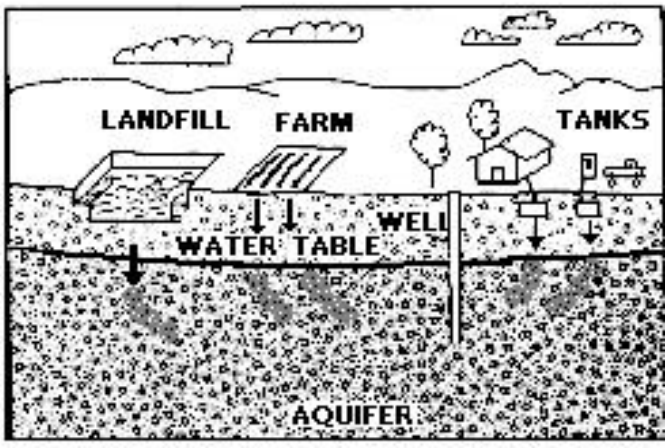

Figure 1: Example of how a well could become contaminated by different land uses and activities.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.
- ✓ For utility transformers that may contain PCBs, contact the utility company 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.

Planning:

- ✓ Work with local officials in Stow to include the school Zone II in Aquifer Protection District Bylaws and to assist you in improving protection.

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, the town library and the local media.

- ✓ 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.

Funding:

The Department's Wellhead Grant Protection 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 2001 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area.
- Recommended Source Protection Measures Factsheet
- Your Septic System Brochure
- Healthy Schools Fact Sheet
- Wellhead Protection Grant Program Fact Sheet