Source Water Assessment Program (SWAP) Report
For
Harry Lee Cole School

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

Date Prepared:
February 1, 2001

Table 1: Public Water System (PWS) Information

PWS NAME	Harry Lee Cole School
PWS Address	Middleton Road
City/Town	Boxford, Massachusetts
PWS ID Number	3038009
Local Contact	Kevin McGann
Phone Number	(978) 750-1955

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Cole School Well	3038009-01G	180	538	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.

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

The well for the Harry Lee Cole School is a public water supply currently serving a population of 550 students and staff. The well for the Harry Lee Cole School is located in a stand of trees on the southwest side of the school building. The well is 6 inches in diameter and is drilled to a depth of 755 feet. The Cole School Well has a Zone I radius of 180 feet and an Interim Wellhead Protection Area (IWPA) radius of 538 feet. The well is located in a sand and gravel aquifer that has a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. Please refer to the attached map for the well location, Zone I, and IWPA. For current information on monitoring results and treatment, 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).

5. 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. **Hazardous Materials; and**
3. **Stormwater Catchbasin.**

The overall ranking of susceptibility to contamination for the well is high, based on the presence of at least one high threat land use or activity in the IWPA, as seen in Table 2.

1. **Zone Is –** Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The Harry Lee Cole School Zone I contains a portion of the school building, a utility substation transformer, the bus pick-up/drop-off area, the intersection of two moderately traveled roads, and a portion of Main Street. The public water supplier does not own and/or control all land encompassed by the Zone 1. 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:

   ✓ Remove non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
   ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

2. **Hazardous Materials/Floor Drains** - Discharge from boiler room floor drains MUST go to a DEP approved tight tank or the drains must be sealed, and staff should be trained on proper disposal of hazardous materials and hazardous waste disposal practices.

   Recommendations:
   Compliance can be achieved by rerouting the discharges to a DEP approved tight tank or by eliminating the floor drains if they aren't needed.

3. **Stormwater Catch Basins –** Catch basins transport storm water from the roadway and adjacent properties to the ground. 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.

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Storage, use, and improper disposal of hazardous materials	No	Yes	High	Floor drains in boiler room discharge to septic system
Parking lot, driveways & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells
Athletic/Agricultural Fields	No	Yes	Moderate	Fertilizer and pesticide use
Septic Systems	No	Yes	Moderate	See septic systems brochure in the appendix
Utility substation transformer	Yes	Yes	Low	See recommendations
Stormwater catch basins	No	Yes	Low	Location of discharge is unknown
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.

Recommendations:

- ✓ Work with the Town to have to the catch basins inspected, maintained, and cleaned on a regular schedule. Additionally, routine street and parking lot sweeping reduces the amount of potential contaminants in storm runoff.

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 Cole School Well susceptibility to contamination. Harry Lee Cole School is commended for not using lawn care products on school property. Harry Lee Cole School should review and adopt the key recommendations above and the following:

Priority Recommendations:

- ✓ Complete a wellhead protection plan.

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.
- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Prohibit public access to the well by gating roads, and posting signs.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, and check any above ground tanks for leaks, etc.
- ✓ 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.
- ✓ Redirect road and parking lot drainage in the Zone I away from well.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Upgrade to propane or natural gas for back-up power sources.

Training and Education:

3 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.
- ✓ 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 is directed away from the well and is treated according to DEP guidance.

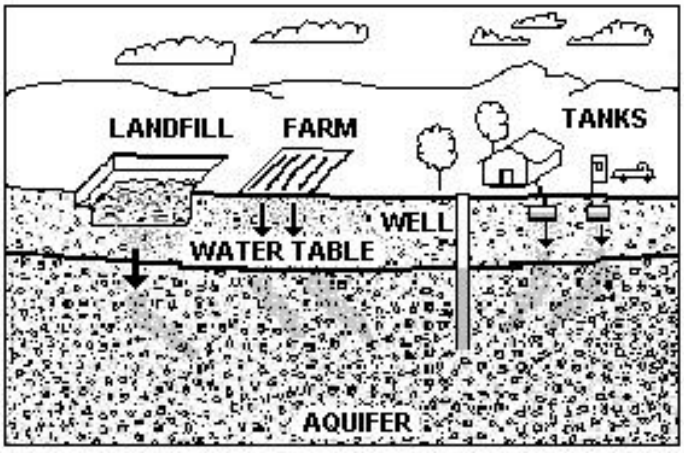

Figure 1: Example of how a well could become contaminated by different land uses and activities.

Facilities Management:

- ✓ Implement standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/brp/dws/dwspubs.html.
- ✓ Eliminate non-sanitary wastewater discharges to on-site septic systems. Instead, in areas using hazardous materials, discharge drains to a tight tank.
- ✓ Bring the floor drain into compliance with DEP Regulations (refer to attachment "Industrial Floor Drain Brochure").
- ✓ Remove hazardous materials from rooms with floor drains that drain to the ground or septic systems.
- ✓ Floor drains in areas where hazardous materials or wastes might reach them need to drain to a tight tank or be sealed.

For More Information:

Contact Anita Wolovick in DEP's Wilmington Office at (978) 661-7768 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

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

- ✓ 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 Harry Lee Cole School property.
- ✓ 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 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.
- ✓ The school is currently not registered as a generator of hazardous waste or waste oil. Review enclosed document "A Summary of Requirements for Small Quantity Generators of Hazardous Waste" to determine your status and regulatory requirements.

Planning:

- ✓ Work with local officials in Boxford to include the Harry Lee Cole School 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.

Agricultural:

- ✓ Consider obtaining a conservation restriction for any agricultural land within Zone I that cannot be purchased. Another option is to negotiate a "Memorandum of Understanding" (MOU) with the farmer to refrain from using pesticides and fertilizers and eliminate manure storage within Zone I.
- ✓ Encourage farmers in the IWPA to seek assistance from the Natural Resource Conservation Service (NRCS) in addressing manure management issues.

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 from last year (Please note: each program year the Department posts a new Request for Response for the Grant program (RFR)).

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