

Source Water Assessment Program (SWAP) Report

For Rochester Memorial School



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

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February 6, 2001

Table 1: Public Water System (PWS) Information

<i>PWS NAME</i>	Rochester Memorial School
<i>PWS Address</i>	16 Pine Street
<i>City/Town</i>	Rochester, Massachusetts
<i>PWS ID Number</i>	4250002
<i>Local Contact</i>	Principal, Jay Ryan
<i>Phone Number</i>	508-763-2049

<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	4250002-01G	187	484	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. Attachments: including Map of the protection area(s)

1. DESCRIPTION OF THE WATER SYSTEM

The Well

The Rochester Memorial School is a public water system with a single water supply well currently serving a population of 509 students, 72 teaching staff and approximately 10 police and fire Department personnel. The well is located in a below ground concrete vault south of the school's main entrance. The well is 6 inches in diameter and is drilled to a depth of 70 feet. Well #1 has a Zone I of 187 feet and an Interim Wellhead Protection Area (IWPA) of 484 feet. The well is located in a sand and gravel aquifer with a high vulnerability to contamination due to the absence of a hydrogeologic barrier that can prevent contaminant migration. Please refer to the attached Map of the Zone I and IWPA.

The Water Quality

The well serving the facility is treated by a limestone contactor. The limestone contactor is designed to raise the pH of the water to reduce its corrosiveness. For current

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).

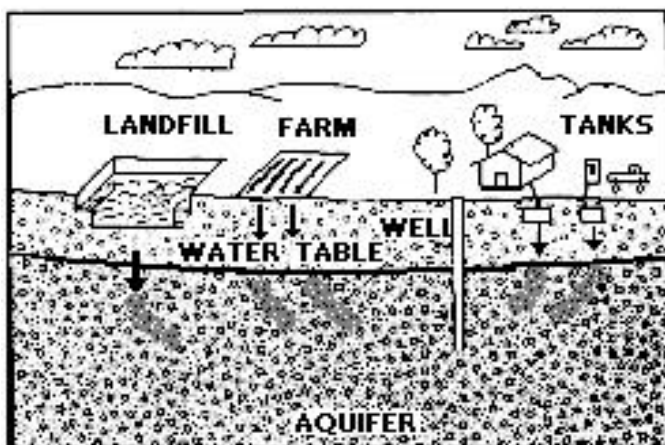


Figure 1: Example of how a well could become contaminated by different land uses and activities.

information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1.

Future Considerations

The school recently purchased approximately eight acres of land in close proximity to the school, which may provide a location for a new water source with the appropriate protective radii. Any proposed expansion of use of the system will require a new water supply subject to Department approval. This will become necessary if the school plans to expand.

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 1;**
2. **An Aboveground Storage Tank (AST) with Heating Oil; and**
3. **A Floor Drain within the Zone 1 with a Potential for Discharge of Petroleum Hydrocarbons/ Hazardous Waste to the Ground.**

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.

ZONE I:

1. **Zone I-** Currently, the well does not meet DEP's restrictions, which only allow water supply related activities in Zone Is. The public water supplier does not own and/or control all land encompassed by the Zone I. The facility's Zone I contains school buildings, police and fire department buildings, roads, parking areas, a residence, and school playground. 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:

- ✓ Remove all non-water supply activities from 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 system.
2. **Aboveground Storage Tank** – A heating oil AST without secondary containment is located inside the fire department garages within the Zone I.

Recommendation:

- ✓ Remove or relocate the AST from the Zone I, or provide 110% secondary containment for the AST. Comply with all provisions of the regulations regarding AST. Any modifications to the AST must be accomplished in a manner consistent with Massachusetts's plumbing, building, local regulations and fire code requirements.

3. **Floor Drain** - Floor drains that ultimately lead to the soil via a dry well or septic system are prohibited. A floor drain was observed within the Fire Department garages within the Zone I. The ultimate discharge location for this floor drain is unknown. The floor drain at the fire station is a concern due to the storage of heating oil, gasoline, vehicle storage and maintenance, vehicle washing and other chemical storage.

Recommendation:

- 3 Bring the floor drain into compliance with DEP's

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

Facility Type	Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
School	Fuel Storage Below Ground	No	Yes	High	Heating oil tank
Fire Station	Floor Drain	Yes	Yes	High	Hazardous materials stored in vicinity
School	Parking lot, driveways & roads	Yes	Yes	Moderate	Limited road salt usage and drainage away from wells
School	Athletic Field	No	Yes	Moderate	Fertilizer and pesticide use
	Cemetery	No	Yes	Moderate	
School	Septic System	No	Yes	Moderate	Refer to septic systems brochure
School & Fire Station	Fuel Storage Above Ground	Yes	Yes	Moderate	Tank does not have secondary containment
Residential	Lawn care/gardening	No	Yes	Moderate	One residence
Residential	Septic systems	No	Yes	Moderate	One residence

* -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/

For More Information:

Contact Mark Dakers in DEP's Lakeville Office at (508) 946-2847 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.

Regulations (refer to attachment 4 -*Industrial Floor Drain Brochure*).

- Contact the UIC coordinator for the Southeast Region Office of the Department for additional technical assistance (Mark Dakers Tele. #508-946-2847).

Interim actions:

- Cease using the floor drain
- Determine the discharge point of the floor drain

Rochester Memorial school should review and adopt the **key** recommendations above for the potential sources of contamination identified in the **Zone I**.

In addition to the potential sources of contamination identified within the Zone I, there are additional potential sources of contamination in the IWPA.

IWPA:

- ✓ **Underground Storage Tank (UST)** - There is an UST containing heating oil located within the IWPA. The UST is located west of the school just outside the main entrance. The UST is 12,000 gal. fiberglass double wall tank with leak detection and overfill protection which was installed in 1989-1990. An UST in the IWPA containing petroleum products is a concern due to the potential threat posed by a release of large quantities of fuel.
- ✓ **Hazardous materials** - The facility currently participates with the Town of Rochester in its household hazardous waste collection to discard many of its spent chemicals. Staff should be trained on proper transportation and disposal of hazardous materials.
- ✓ **AST-** There is a backup diesel generator with a 330 gal. aboveground storage tank approximately 450 feet from the well inside the school building.

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.

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

- ✓ **Septic system leaching field** The septic system leach field is located within the IWPA.

3. PROTECTION RECOMMENDATIONS

Implementing protection measures and best management practices (BMPs) will reduce the wells susceptibility to contamination. The Rochester Memorial School is commended for its current protection measures. Rochester Memorial School should review and adopt the **key recommendations above** and the following recommendations.

Zone I:

- 3 Continue to not use or store pesticides, fertilizers or road salt within Zone I.

Training and Education:

- ✓ Train staff on proper hazardous material disposal, transportation, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff.
- 3 Drinking water protection area signs were not posted at the time of the site visit. The Department recommends systems post drinking water protection area signs at key visibility locations.

Facilities Management:

- 3 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.
- 3 Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on the school property. To learn more, refer to the attached Fact Sheets "Protecting Water Sources from Fertilizer" and "Protecting Groundwater from Pesticides".
- 3 Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- 3 Eliminate discharge of non-sanitary wastewater to on-site septic systems. Instead, discharge any floor drains in areas using hazardous materials to a DEP approved tight tank.
- 3 The septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.

Planning:

- 3 Work with local officials in Rochester to include the school IWPA in Aquifer Protection District Bylaws and other regulations and to assist you in improving protection.
- 3 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.

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
- Your Septic System Brochure
- Pesticide Use Factsheet
- Fertilizer Use Factsheet
- Wellhead Protection Grant Program (fact sheet)
- Source Protection Sign Order Form

