Source Water Assessment Program (SWAP) Report For Westport Middle School

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.

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	Westport Middle School
PWS Address	400 Old Country Road
City/Town	Westport, Massachusetts
PWS ID Number	4334011
Local Contact	Mike Duarte
Phone Number	508 636-1101

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	4334011-01G	174	470	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, 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 contamination 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 Westport Middle School is a public water supply currently serving the schools students and staff. Well #1 is located in a well pit 50 feet north of the school. Well #1 is a bedrock well drilled to a depth of 400 feet. Based on the current Zone I of 174 feet and an Interim Wellhead Protection Area (IWPA) of 470 feet, the average daily withdrawal for the well is limited to 3114 gallons per day. The Zone I and IWPA protective radii are based on metered water readings. Please refer to the attached map of Zone I and IWPA. Well #1 is laocated in a bedrock aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminate migration. A natural gas powered generator provides emergency power.

The well serving the Westport Middle School has no treatment at this time. The Westport Middle School is interconnected with the Westport Elementary School to

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).

provide water in an emergency. 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. **Athletic Fields,**
3. **Potential discharge of Industrial Wastewater to the septic system,**
4. **Stormwater,**
5. **Septic system.**

The overall ranking of susceptibility to contamination for the well is Moderate, based on the presence of at least one Moderate threat land use or activity in the Zone I, 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. Well #1's Zone I contains athletic fields and school buildings. The public water supplier does own 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. Examples of modification or expansion include the addition of buildings, temporary or permanent, and increased water use due to an increase of staff and students.

   Recommendations:

- To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements.
- Do not use or store pesticides, fertilizers or road salt within the Zone I.
- If the school intends to continue using the structures, driveways, athletic fields and parking areas in the Zone 1, use BMPs and restrict activities that could pose a threat to the water supply.
- Drinking water protection signs were not posted at the time of the site visit. The Department recommends posting drinking water protection area signs at key visibility locations.

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Athletic Fields	Well #1	Well #1	Moderate	Fertilizer and pesticide use
Industrial Wastewater	No	Well #1	Moderate	Science classroom and boiler blowdown discharge to septic system
Parking lot, driveways & roads	No	Well #1	Moderate	Limit road salt usage and provide drainage away from wells
Residential	No	Well #1	Moderate	One resident
Septic System	No	Well #1	Low	Refer to attachment on septic systems
Structures	Well #1	Well #1	-	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.

2. **Athletic Fields -** There are playing fields located within the Zone I and IWPA of Well #1. Over-application of pesticides and fertilizers on athletic fields is a potential source of contaminants to the water supply.
   Recommendations:
- Use BMPs for applying, handling and storing of pesticides and fertilizers.
- Refer to attachments, "Protecting Water Sources from Fertilizer" and, "Protecting Groundwater from Pesticides".

3. **Industrial Wastewater**- Discharge from science classrooms and boiler blow down is required to go to a tight tank or sewer. A sump was observed in the boiler room. The sump receives all boiler room drainage and discharge via a sump pump to the septic system.
   Recommendations:
- Eliminate non-sanitary wastewater discharges to on-site septic systems. Please contact Jeff Gould in the Department's Water Pollution Control section at 508-946-2757 in order to discuss your management options.

4. **Storm Water – T**here are two (2) parking areas located south and east of Well #1 Zone I. 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. There are no catch basins or storm water structures for the parking lots.
   Recommendations:
- The Department recommends the public water supplier 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 swales, installation of curbs along the paved areas, detention basin, catch basins etc.) as part of a comprehensive storm water management plan for the site (refer to Storm Water Management Handbook, Volume 1 and 2 for information on BMPs).

5. **Septic System**-A portion of school's septic system is located within the IWPA of the well. If the 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:
- Staff should be instructed in the proper disposal of spent household chemicals (Include custodial staff, groundskeeper and certified operator).
- Septic system component should be located, inspected and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.
- Avoid septic tank cleaners, especially those with acids and solvents.

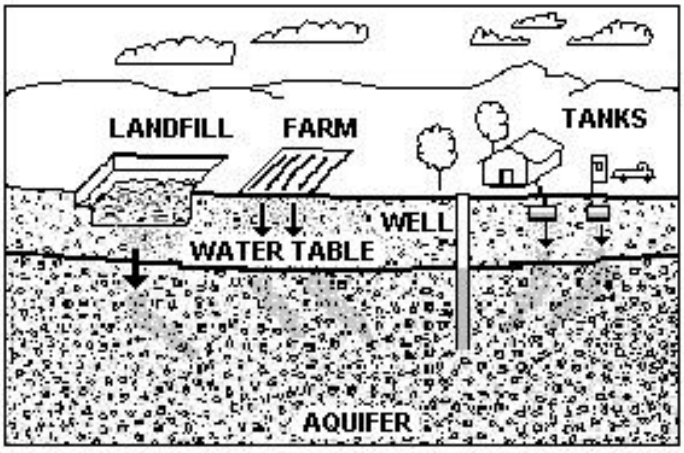

Figure 1: Example of how a well could become contaminated by different land uses and activities.

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

3. Protection Recommendations

Implementing protection measures and best management

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 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
4. Draft Land/Associated Contaminants Matrix

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

practices (BMPs) will reduce the wells' susceptibility to contamination. Westport Middle School is commended for its previous program of UST removal and its conversion of the heating system from oil to natural gas. Westport Middle School should review and adopt the key recommendations above and the following:

Zone I:

- Keep non-water supply activities out of the Zone I.
- Consider well relocation if Zone I threats cannot be mitigated.
- Prohibit public access to the well pit for Well #1 by locking facilities, gating roads, and posting signs.
- Well #1 is a vault/pit installation. Pit installations for water supply wells are not approved by the Department due to the safety concerns associated with confined spaces, as well as the potential for the flooding of the Wellhead that could affect sanitary quality of the water being delivered. Consider extending the Wellhead to 18 inches above the final grade of the surface as part of future modifications to Well #1.

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 labels as appropriate on raw materials and hazardous waste.
- Work with your community to ensure that stormwater runoff from local roads is directed away from the well and is treated according to DEP guidance.

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/bwp/dhm/dhmpubs.html.
- Eliminate non-sanitary wastewater discharges to on-site septic systems. Instead, in areas using hazardous materials, discharge drains to a tight tank or sanitary sewer.
- 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, be sealed, or be connected to a sanitary sewer.
- Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.

Planning:

- Work with local officials in Westport 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 land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.
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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 "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet. Please note: each program year the Department posts a new Request for Response for the Grant program (RFR). Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf.

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 and Fertilizer Use Fact sheets
- Industrial Floor Drains Brochure
- Healthy Schools Fact Sheets
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form