Massachusetts Department of Environmental Protection Source Water Assessment and Protection (SWAP) Report for Mountain View Health Care Center

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: November 19, 2003

Table 1: Public Water System (PWS) Information

PWS Name	**Mountain View Health Care Center**
PWS Address	**Montgomery Road**
City/Town	**Montgomery, Massachusetts**
PWS ID Number	**1194001**
Local Contact	**Mr. John Sullivan**
Phone Number	**1-413-238-5344**

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #2	1194001-02G	263	672	Moderate
Well #3	1194001-03G	273	720	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 de-icing, 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

Montgomery is a small, rural community in the Berkshire foothills of western Massachusetts. The Mountain View Health Care Center, nursing home, is located on Montgomery Road and serves a population of approximately 35 to 40 residents and staff. Montgomery does not have a municipal water system or a municipal wastewater treatment facility. Therefore, the nursing home utilizes two, on-site water supply wells

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 wastewater is discharged through an on-site septic system. Well #2 is a 6-inch diameter, 500-feet deep, bedrock well and has a reported historical yield of 8.5 gpm. The well is located 75 feet west of the building. Well #3 is a 6-inch diameter, 400-feet deep, bedrock well and has a reported historical yield of 10 gpm. Well #3 is located 150 feet northwest of the building. The nursing home also maintains one emergency supply well (01G) which is located in the front of the building, was severed from the system and is not used due to chronic bacteria contamination in the past. Emergency sources will not be addressed further in this report.

The Zone I is the protection area immediately surrounding the well, while the Interim Wellhead Protection Area (IWPA) provides an interim protection area for a water supply well when the actual recharge area (Zone II) has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The Zone I and Interim Wellhead Protection Area (IWPA) radii for Well #2, based on a historical pumping rate of 8.5 gpm, are 263 feet and 672 feet, respectively. The Zone I and Interim Wellhead Protection Area (IWPA) radii for Well #3, based on a historical pumping rate of 10 gpm, are 273 feet and 720 feet, respectively. Please refer to the attached map of the Zone I and IWPA.

Both wells withdraw water from the bedrock aquifer. The complex is located on an upland area underlain by till and shallow bedrock. Geologic maps of the area identify the bedrock as schist of the Goshen Formation. There is no evidence of a continuous confining unit in the immediate area. Wells drilled in these conditions are considered highly vulnerable to potential contamination from the ground surface because there is no significant hydrogeologic barrier, such as clay, to prevent surface contamination from migrating into the bedrock aquifer.

The water does not receive treatment but it is disinfected with chlorine prior to distribution due to the wells' proximity to the septic systems. For information on current water quality monitoring results, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Refer to Table 1 for additional information regarding the location of the well and activities within the protection areas.

2. Discussion of Land Uses in the Protection Areas

The Zone Is for the wells are not in compliance with the DEP Zone I requirements that

Table 2: Table of Activities within the Water Supply Protection Areas for Both Sources

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Non-conforming Zone I	-	-	-	Contact DEP prior to conducting any work in Zone I or expanding the system.
Transportation corridor/parking	Well #2	Both	Moderate	Limit road deicing materials usage and monitor parking areas.
Nursing home	Well #2	Both	Moderate	Supply BMPs to staff regarding waste disposal.
Fuel storage/Floor drain	Well #2	Both	Moderate	Continue to use best management practices and monitor use and delivery of petroleum products.
Septic system components	Both	Both	Moderate	Continue to maintain septic system and protect it from improper disposal.

*** -For more information, see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website- www.state.ma.us/dep/brp/dws/.**

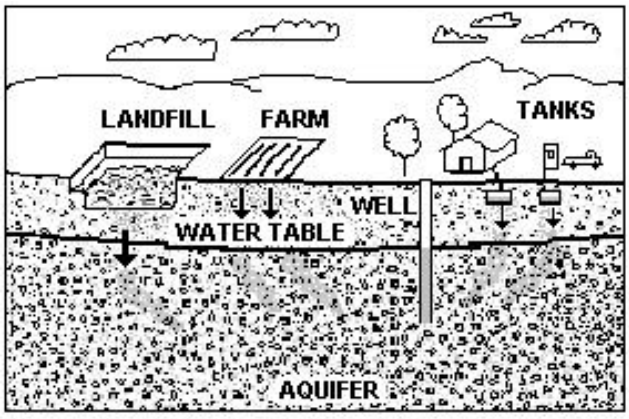

Figure 1: Example of how a well could become contaminated by different land uses and activities.

restrict activities to only those associated with water supply or passive, non-threatening activities. The Zone Is and IWPAs encompass the entire complex including the residential area, the fuel oil storage area (inside the building), and septic system components. The facility chlorinates the water prior to distribution.

Key issues include:

1. **Non-conforming Zone I,**
2. **Transportation/parking**
3. **Nursing Home/residential septic systems,**
4. **Fuel storage (ASTs), and**
5. **Floor drain in boiler room.**

The overall ranking of susceptibility to contamination for the Nursing Home supply wells is moderate based on the presence of several moderate ranked potentially threatening land uses or activities in the Zone I and IWPA. Please refer any questions about water quality at the facility to the contact person listed in Table 1. Continued monitoring and site management is recommended to prevent accidents and minimize threats within the Zone I and IWPA protection areas of the wells.

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.

1. Non-conforming Zone I – The water supplier does not own or control the entire Zone I area and there are non-conforming activities within the Zone Is. Systems not meeting DEP Zone I requirements for ownership or control, or that have non-conforming activities within Zone I, must receive DEP approval and address Zone I issues prior to conducting work in Zone I, increasing water use or modifying systems.

Zone I Recommendations:

- Prohibit any additional activities within Zone I and where feasible remove non-conforming activities within the Zone I areas.
- Use Best Management Practices for handling treatment chemicals and vehicles used to access the area.
- Monitor all fuel oil deliveries and parking areas.
- Do not use or store pesticides, fertilizers or road salt within the Zone I.
- Maintain septic systems and upgrade as appropriate.
- Replace the wells with a conforming source if activities cannot be mitigated or water quality is impacted by activities in the Zone I.

2. Transportation corridor/parking – Montgomery Road and the facility parking areas are located within the Zone I and IWPA.

Transportation corridor Recommendations:

- Monitor all parking areas and continue to ensure the drainage flows away from the wells.
- Prepare an Emergency Response Plan that includes coordination among the DEP, the Town, and the State Police in the event of an accident near the wellhead.

3. Nursing Home/Residential Land Use – The nursing home and two residences are located within the Zone Is and IWPAs. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater

For More Information:

Contact Catherine V. Skiba in DEP's Springfield Office at (413) 755-2119 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 made available to the public water supplier and town boards.

because septic systems leach to the ground. If septic systems fail or are not properly maintained they could be a potential source of microbial contamination.

- **Household Hazardous Materials** - Hazardous materials may include cleaning materials, medications, automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used generally in homes are potential sources of contamination.
- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) and their associated fuel lines can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catch basins transport stormwater from roadways and adjacent properties to the ground and streams. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include lawn chemicals, pet waste, and contaminants from automobile leaks, maintenance, washing, or accidents. Visit the Nonpoint Source pollution web site for additional information at http://www.state.ma.us/dep/brp/wm/nonpoint.htm.

Residential Land Use Recommendations:

- Educate staff, particularly maintenance staff on best management practices (BMPs) for protecting water supplies. Focus efforts on management and disposal of cleaning materials and potentially hazardous materials.

4. Aboveground fuel oil storage – There are two fuel oil ASTs located within the building within the Zone I of both wells. Both tanks are within containment structures. If managed improperly, fuel oil tanks and their associated fuel lines can be a potential source of contamination due to leaks or spills of the materials they store.

Recommendation:

- Any modifications to the tanks and the lines must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding ASTs and USTs.
- Monitor all activities associated with the fuel oil especially delivery.
- Have spill containment/absorbent materials available on-site.
- Oil lines from the tank to the boiler should be sleeved so that any leaks would drain back to the tank or minimal oil would leak to the boiler room.

5. Floor Drain in Boiler Room – There are floor drains in the boiler room, that are assumed to discharge to the septic system. However, the discharge point is not known. Title 5 prohibits disposal of any wastewater other than sanitary waste to a septic system and the UIC regulations prohibit dry wells in areas where hazardous materials or petroleum may enter the floor drain. The floor drain must be protected to prevent boiler blow down, oil or other prohibited discharges through the floor drain.

Recommendations:

- Be sure that the floor drains are in compliance with Department Regulations (refer to Industrial Floor Drain Brochure attached).
  - Contact the UIC coordinator for the Western Region Office of the Department (Rick Larson 413-755-2207 or Tony Zaharias 413-755-2122).
- Containment to prevent accidental releases to the floor drain may be an option. Contact the regional DEP contact for the UIC program listed above. Oil lines from the tank to the boiler should be sleeved so that any leaks would drain back to the tank or minimal oil would leak to the boiler room. Prepare a policy and a plan for maintenance operations, especially when oil filters are changed. DEP recommends that you require your boiler maintenance contractor use

containment, protect the drain and have absorbent materials on hand to prevent accidental leaks while conducting routine maintenance. The contractor should be responsible for the off-site disposal of any boiler blow down generated during maintenance.

- Determine the discharge location of the drains. Seal all cracks in the floor and the floor drain if it cannot be adequately protected to prevent a prohibited discharge.

4. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will further enhance the protection of the well and minimize its susceptibility to contamination. Please review and adopt the key recommendations above and as follows:

Priority Recommendations:

- Maintain the septic systems and consider options for replacement of system or wells as is appropriate.

Zone I:

- Prohibit any new non-water supply activities from Zone I.
- Continue regular inspections of the Zone I. Look for illegal dumping, evidence of access or vandalism.
- Do not use or store pesticides, fertilizers or road salt within the Zone I.

Training and Education:

- Train staff on proper hazardous material use, disposal, emergency response, and best management practices. Post labels as appropriate on raw materials and hazardous waste.
- Post drinking water protection area signs at key visibility locations away from the immediate wellhead area.
- Educate neighbors and consumers regarding BMPs with respect to household hazardous materials handling and disposal and septic system maintenance.

Planning:

- 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 in the event of an emergency.
- 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.

Funding Sources:
The DEP's Wellhead Protection Grant Program provides funds to assist public water suppliers and their partners in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under this grant program. If funds are available, in the spring, DEP posts a new Request for Response for the grant program (RFR).

These recommendations are only part of your on-going local drinking water source protection. Citizens and community officials should use this SWAP report to encourage discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Areas
- Recommended Source Protection Measures Fact Sheet