Source Water Assessment Program (SWAP) Report For DEM Berkshire Regional Headquarters

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: December 27, 2001

Table 1: Public Water System (PWS) Information

PWS NAME	**DEM Berkshire Regional Headquarters**
PWS Address	**740 South St., P.O. Box 1433**
City/Town	**Pittsfield, Massachusetts**
PWS ID Number	**1236016**
Local Contact	**Paul Adams**
Phone Number	**413-442-8928**

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	1236016-01G	100	414	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 DEM Berkshire Regional Headquarters, located in Pittsfield, serves approximately 30 employees year round. The system is served by on-site septic disposal located 200 feet from the well. The Zone I and Interim Wellhead Protection Area (IWPA) radii are 100 feet and 414 feet, respectively based on estimated water use. The Zone I is the protected area immediately surrounding the wellhead while the IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA.

The well is reportedly drilled to a 400-foot depth with the pump set at 248-feet below grade. The facility is located within an area of bedrock that is mapped by USGS as the

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).

Wallomsac Formation comprised primarily of dark-grey phyllite, schist and intrusive limestone. There is no surficial geology map available; however, based on the observed bedrock outcrops and topography at the site, it is assumed the surficial geology is a thin layer of till. There is no evidence of a confining, protective layer such as clay in the vicinity of the well. Wells located in these geological conditions are considered to have a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration from the surface.

The well water serving the facility is exposed to ultra-violet light for disinfection. For current information on water quality monitoring results, please contact the Public Water System contact person listed above in Table 1. Please refer to the attached map of the Zone I and IWPA and 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

There are few activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Nonconforming activities in the Zone I;**
2. **Septic System; and**
3. **Floor drain in boiler room.**

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 or IWPA, as seen in Table 2.

1. Nonconforming activities in the Zone I – Currently, the water supplier does not own or control the entire Zone I area for the well. Please note that systems not meeting DEP Zone I requirements for ownership or control, must get DEP approval and address Zone I ownership prior to increasing water use or modifying systems. A portion of the Zone I is owned by the South Mountain Associates (SMA). In addition, the SMA owners have an easement that allows parking on the DEM land during the concert season that runs 5 or 6 Saturdays in the fall. There is also an interior transportation corridor located within the Zone I.

Recommendations:

- Continue to work with South Mountain Associates in an attempt to find alternative parking solutions.
- Use Best Management Practices for handling treatment chemicals and vehicles used to access the area. Do not use or store pesticides, fertilizers or road salt within the Zone I.

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Internal Transportation Corridors and Seasonal Parking	Well # 1	Well #1	Moderate	Monitor area for accidental leaks or spills
Septic System	No	Well #1	Moderate	See Septic System brochure
Floor drain in boiler room	No	Well #1	Moderate	Bring the floor drains into compliance with Department Regulations
Underground Storage Tank (UST) – Fuel oil	No	Well #1	High	New double-walled, 1000-gallon heating oil tank

*** -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/.**

- Prepare an emergency response plan for responding to an accidental release.
- Do not conduct any additional activities within the Zone I. Contact MA DEP prior to conducting any activities within Zone I.

2. Septic Tank – Although the septic system and leach field for the facility are located outside of the Zone I and are topographically down gradient from the well, they are within the IWPA of the well. The most significant threats from a septic system are from lack of maintenance and improper disposal of non-sanitary waste.

Recommendations:

- Provide staff and area residents with information about proper maintenance and disposal practices for septic systems. Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.
- Upgrade and maintain the facility's system as required.
- Avoid septic tank cleaners, especially those with acids and solvents.

3. Floor drain in boiler room – A floor drain is located in the boiler room, which discharges into the septic system. Title 5 prohibits disposal of any wastewater other than sanitary waste to a septic system. The floor drain must be sealed, connected to a tight tank or as a last resort, protected to guarantee that boiler blow down, oil or other prohibited discharges cannot enter the floor drain.

Recommendations:

- Bring the floor drains into 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).
  - Interim Actions: cease using the floor drains.
- If you wish to retain the drain, install a tight tank and connect the boiler room floor drains to the tank.

Additionally, there is a 1000-gallon capacity, #2 fuel oil UST within the IWPA, located in the front yard, downhill from the facility and well. The tank is double-steel wall, installed two years ago. USTs in close proximity to the water supply should be closely monitored especially during deliveries. Any upgrades and modification must meet current construction standards and be done consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding USTs.

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.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the DEM Berkshire Regional Headquarters' well susceptibility to contamination. DEM Berkshire Regional Headquarters is commended for bringing the wellhead above grade, for upgrading the UST. DEM Berkshire Regional Headquarters should review and adopt the key recommendations above and the following:

Priority Recommendations:

- Keep non-water supply activities out of the Zone I as much as possible. Attempt to work out a compromise agreement for seasonal parking use.
- Address floor drains in boiler room.

Zone I:

- Prohibit public access to the well by locking facilities and posting signs.
- Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, etc.

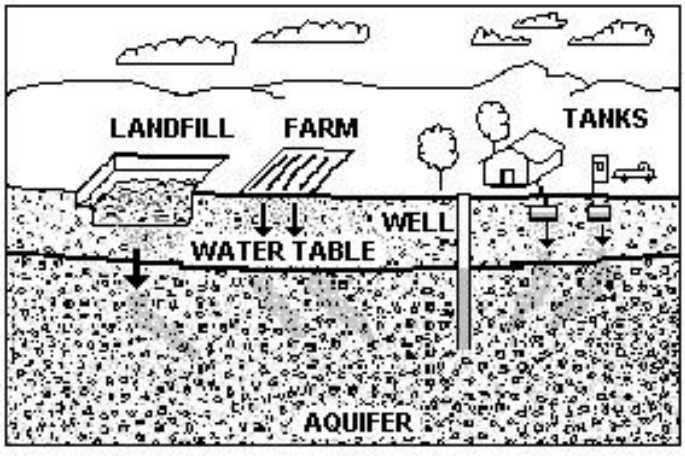

Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Catherine Skiba in DEP's Western Region 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.

- If water quality cannot be protected continue investigating other options for connecting to City water.

Training and Education:

- Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, and certified operator. Post labels as appropriate on raw materials and hazardous waste.
- Post drinking water protection area signs at key visibility locations.
- Work with your community to ensure that stormwater runoff 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, refer to http://www.state.ma.us/dep/bwp/dhm/files/sqgsum.pdf for the Requirements for Small Quantity Generators.
- Eliminate non-sanitary wastewater discharges to on-site septic systems. Instead, in areas using hazardous materials, seal the floor drain or discharge drains to a tight tank or sanitary sewer. (refer to attachment "Industrial Floor Drain Brochure").
- Remove hazardous materials from rooms with floor drains that drain to the ground or septic systems.
- Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.
- Septic system components should be located, inspected, and maintained on a regular basis.
- Concrete or earthen collars around wellheads should slope away from well casing.
- 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.

Planning:

- Work with local officials in Pittsfield to include DEM Berkshire Regional Headquarters' IWPA in an Aquifer Protection District overlay 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.

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 Fact Sheet
- Your Septic System Brochure
- Pesticide Use Fact Sheet
- Industrial Floor Drains Brochure
- Source Protection Sign Order Form