Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for
Monroe Bridge Water District

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:
October 29, 2003

Table 1: Public Water System (PWS) Information

PWS Name	**Monroe Bridge Water District**
PWS Address	**P.O. Box 75**
City/Town	**Monroe, Massachusetts**
PWS ID Number	**1190000**
Local Contact	**Mr. Mark Simon**
Phone Number	**802-793-2691**

Surface Water Source

System Susceptibility *Moderate*

Source Name:	***Source ID***	***Susceptibility***
Phelps Brook	1190000-01S	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water supplies 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

Monroe Bridge is a village within the Town of Monroe. Monroe is the smallest town in Franklin County and is relatively isolated in the rugged Berkshire Hills of northwestern Massachusetts on the Vermont border. Monroe developed in the 1800's as an agrarian

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).

community until hydroelectric power and the paper industry developed in the late 1800's and early 1900's. Today Monroe is primarily a residential and tourist (recreational) community. The Monroe Bride Water District maintains and operates a single surface water source, Phelps Brook. The system has a dam, ponding the brook to create a small reservoir and serves approximately 31 homes in the village.

Phelps Brook has a relatively small watershed of approximately 517 acres, with steep to very steep sides in the brook valley. The brook discharges into the Deerfield River southeast of the Monroe Bridge intake and just south of the Sherman Reservoir along the Deerfield River. The overburden in the watershed is primarily thin till over bedrock with abundant bedrock outcrops. There are some small deposits of recent alluvium and swamp deposits near the headwaters of the brook where the topography is somewhat less steep. The bedrock in the watershed is mapped as the metamorphic equivalents of allocthonous volcanic and sedimentary rocks east of the Berkshire highlands. The rocks are primarily schist and gneiss of the Hoosac Formation and the structural geology is a complex series of folds and faults. Surface water supplies, by their nature, are considered to be highly vulnerable to contamination from the surface because there is little buffer of protection of the source.

Water from the brook is filtered through a slow sand filter, followed by the addition of soda ash to adjust the pH for corrosion control and chlorine for disinfection prior to distribution. For current information on water quality monitoring results, please refer to the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Please refer to the attached map of the Zone A, B and watershed outline and Table 2 for additional information regarding 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. **Zone A activities,**
2. **Transportation corridors,**
3. **Residential land uses, and**
4. **Agricultural uses.**

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Transportation corridors	Yes	Yes	Moderate	Limit road salt usage. Investigate and work with the Town to control erosion and runoff
Residential use	No	Yes	Moderate	Septic and household hazardous materials
Agriculture	Yes	Yes	Moderate	Hobby/commercial farming.

*** -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.

The overall ranking of susceptibility to contamination for the system is moderate, based on the presence of at least one land use or activity ranked as moderate in the Zone A and watershed, as seen in Table 2.

1. Activities in Zone A - The Zone A includes all areas within 400 feet around the reservoir and within 200 feet of either side of all streams that flow into the intake reservoir. Land use activities within a Zone A may have an impact on surface water sources. Wild animals, farm animals and domestic pets can be carriers of waterborne diseases such as Giardia, Cryptosporidium, Salmonella, etc. while road runoff can carry other contaminants. There are local roads and small parking areas in the Zone A of the system's reservoir and brook.

Zone A Recommendations:

- Continue to monitor and protect the Zone A and prohibit any new threatening activities from the Zone A.
- Continue the use of Best Management Practices for handling treatment chemicals and vehicles used to access the area. Do not use or store petroleum products, pesticides, fertilizers or road salt within the Zone I.
- Work with local emergency response teams to ensure that any spills within the protection areas, especially the Zone A, can be effectively contained. Be sure that the local emergency response team is aware of the source location.

2. Residential Land Uses – There are numerous residences within the watershed. If managed improperly, activities associated with residential areas can contribute to drinking water contamination

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems leach to the ground. Groundwater ultimately discharges to surface water bodies – streams, ponds and brooks. 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 automotive wastes, paints, solvents, pesticides, fertilizers, and other substances. Improper use, storage, and disposal of chemical products used in homes are potential sources of contamination.

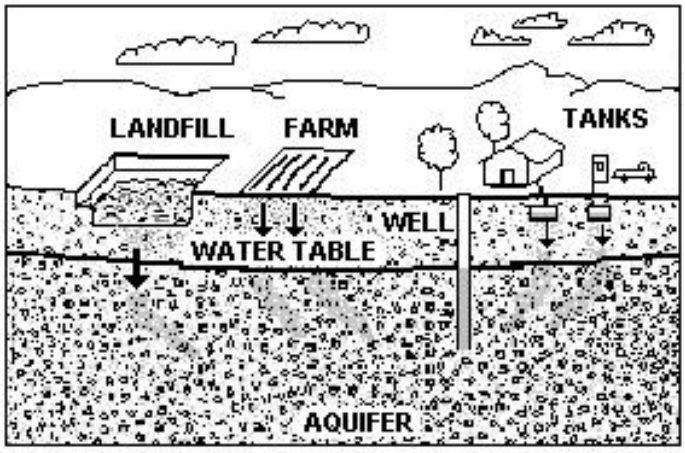

Figure 1: Example of how a well could become contaminated by different land uses and activities.

- **Heating Oil Storage** - If managed improperly, Underground and Aboveground Storage Tanks (UST and AST) can be potential sources of contamination due to leaks or spills of the fuel oil they store.
- **Stormwater** – Catchbasins 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 automotive leaks, maintenance, washing, or accidents.

Residential Land Use Recommendations:

- Educate residents on best management practices (BMPs) for protecting water supplies. Distribute the fact sheet "Residents Protect Drinking Water" available in Appendix A and online at the website www.mass.gov/dep/brp/dws/protect.htm. The fact

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.

sheet provides BMPs for common residential issues.

- Consider long-term options of negotiating fee simple purchase, Right of First refusal agreement, conservation restrictions and Memorandum of Understanding for land not currently owned or controlled by the District.

3. Transportation corridors and right-of-way - There are very steep roads located within the watershed of Phelps Brook. In fact, some of the roads are closed in the winter. De-icing materials, petroleum chemicals and other debris on roads are picked up by stormwater. Roadways can often be sites for illegal dumping of hazardous or other potentially harmful wastes. There is also a utility right-of-way through the watershed that likely is maintained for vegetation control.

Catchbasins and drainage swales transport stormwater from roadways and adjacent properties to the ground, streams, rivers or reservoir. As flowing stormwater travels, it picks up debris and contaminants from streets and lawns. Common potential contaminants include contaminants from automotive leaks, maintenance, washing, pet waste, pesticides and fertilizers or accidental spills. Phelps Brook is subject to very flashy response because of the nature of the watershed.

Transportation Corridor Recommendations:

- Regularly inspect Zone A and the watershed for illegal dumping and spills.
- Work with local emergency response teams to ensure that any spills within the protection areas, especially the Zone A, can be effectively contained. Be sure that the local emergency response team is aware of the source location.
- Where catchbasins or stormwater structures are installed, work with the municipality or State to have them inspected, maintained, and cleaned on a regular schedule. Regular street sweeping reduces the amount of potential contaminants in runoff.
- Work with local watershed groups to institute a Storm Drain Stenciling Program. For more information on how to develop a storm drain stenciling program go to http://www.earthwater-stencils.com.
- Promote BMPs for stormwater management and pollution controls.
- Review potential USDA funding for mitigation and prevention of runoff pollution through the Environmental Quality Incentives Program (EQIP). The USDA web site is www.ruraldev.usda.gov or call Rita Thibodeau, at the local office (Greenfield at 413-772-0384 - e-mail address is rita.thibodeau@magreenfie.fsc.usda.gov). Review the fact sheet online and call the local office of the NRCS for assistance http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPFct.pdf.
- Visit DEP's Nonpoint Source Pollution web site for additional information and assistance at http://www.state.ma.us/dep/brp/wm/nonpoint.htm.

Rights-of-way Recommendations:

- Request that the Conservation Commission or Selectmen reviewing the right-of-way Yearly Operating Plan (YOP) for utilities, ensure they continue use of only manual control of vegetation and that the utility has accurate information regarding the locations of the protection zones. Review the maps that the utilities use with the town officials.
- Work with local emergency response planners. Be sure that local emergency response teams are aware of the protection areas and coordinate Emergency Response Drills.

4. Agricultural Activities – The watershed includes a small percentage, approximately 5%, of land with agricultural activities. Pesticides, fertilizers and manure have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If managed improperly, Underground and Aboveground Storage Tanks (USTs and ASTs) can be potential sources of contamination due to leaks or spills of the fuel oil they store. Frequently, farms have maintenance garages for equipment and storage tanks.

Agricultural Activities Recommendations:

- Work with commercial farmers in your protection areas to make them aware of your water supply and to encourage the use of a USDA Natural Resources Conservation Service (NRCS) farm plan to protect water supplies. Review the fact sheet available online at the website - http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPFct.pdf.and call the local office of the NRCS in Greenfield for assistance.

- Encourage farmers to incorporate an Integrated Pest Management (IPM) approach into their pest management program. IPM is an ecologically based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- Promote the use of BMPs for fuel oil storage, hazardous material handling, storage, disposal, and emergency response planning.
- Work with farmers to ensure that pesticides and fertilizers are being stored within a structure designed to prevent runoff.
- The USDA has various funding sources for government agencies, non-government organizations and agricultural facilities through programs such as those listed on the USDA web site http://search.sc.egov.usda.gov/. One program in particular, the Environmental Quality Incentives Program (EQIP) may be utilized in a variety of projects from DPW stormwater management to farm nutrient management designed to protect surface and groundwater. Review the fact sheet available online at the website: http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPFct.pdf and call the local office of the NRCS for assistance. This recommendation may be appropriate for the Monroe highway superintendent or Selectmen.
- Work with hobby farmers by supplying them with information about protecting their own wells and the public water supply by encouraging the use of BMPs. Refer to the websites at http://www.state.ma.us/dep/brp/dws/dwspubs.htm and http://www.state.ma.us/dep/consumer/animal.htm#dwqual for additional resources.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the supply's susceptibility to contamination. The District should continue efforts to protect water supplies by reviewing and adopting the key recommendations above and the following:

Priority Recommendations:

- Work with the town to address stormwater runoff issues in the watershed.
- Consider purchase of development rights through Conservation restrictions on land in the Zone A and watershed that are critical for protection.

Zone A:

- Prohibit any new non-water supply activities from Zone A areas that are within your control.
- When feasible, remove all non-water supply activities from the Zone A to comply with DEP requirements.
- Conduct regular inspections of the Zone A. Look for illegal dumping, evidence of vandalism, check any above ground tanks for leaks, etc.
- If it is not feasible to purchase privately owned land within the Zone A at this time, consider a conservation restriction or Memorandum of Understanding (MOU) that would prohibit potentially threatening activities or a Right of First Refusal agreement to purchase the property.
- Periodically inspect road drainage in the Zone A.
- Do not use or store pesticides, fertilizers, petroleum products or road salt within the Zone A.

Training and Education:

- Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers and certified operators. Post labels as appropriate on raw materials and hazardous waste.
- Post drinking water protection area signs at key visibility locations as appropriate.
- Work with your community to ensure that stormwater runoff is managed to minimize erosion and is treated according to DEP guidance.

Facilities Management:

- 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:

- Review plans 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 encourage discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area
- Recommended Source Protection Measures Fact sheet
- Other Source Protection information

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