Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
For
Anawan Junction

What is SWAP?

The Source Water Assessment and Protection (SWAP) program, 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:
August 2004

Table 1: Public Water System (PWS) Information

PWS NAME	Anawan Junction
PWS Address	227 Winthrop Street
City/Town	Rehoboth, Massachusetts
PWS ID Number	4247050
Local Contact	Richard Demers/Alexander Moles (Operator)
Phone Number	(508) 285-9335/(508) 880-6770

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well BW3	01G	125	435	High

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

Anawan Junction receives its drinking water from a groundwater well located in a wooded area southwest of the facility. The well, Well BW3, is a replacement well for Anawan Junction's original source that had become contaminated. Anawan Junction is diligently working with the responsible party of the contamination to ensure its new drinking water source is protected against contamination. Well BW3 has a Zone I of 125 feet and an Interim Wellhead Protection Area (IWPA) of 435 feet. 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 located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant

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).

migration. Please refer to the attached map of the Zone I and IWPA.

The well serving the facility has no treatment at this time; however, Anawan Junction has in place an activated carbon with post disinfection treatment system in the event treatment is needed. The DEP requires public water suppliers to monitor the quality of the water. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1. Drinking water monitoring reporting data are also available on the web via EPA's Envirofacts website at: http://www.epa.gov/enviro/html/sdwis/sdwis_query.html.

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. **Zone I;**
2. **commercial land uses;**
3. **residential development; and**
4. **local roads.**

The overall ranking of susceptibility to contamination for the well is high based on the presence of commercial land use within the IWPA. There are underground storage tanks and a DEP Tier Classified Release Site located just outside of the IWPA which, depending on ground water flows, could be a threat to the well.

1. **Zone I –** Currently, the well does meet DEP's Zone I requirements, which allow only water supply related activities in the Zone I and require that the land within the Zone I be owned or controlled by the public water system. The facility's Zone I contains only wooded land. Anawan Junction owns the entire Zone I. 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.

Recommendations

- ✓ Ensure chain gate restricting access to the wellhead is locked at all times.
- ✓ Regularly inspect the Zone I for vandalism and illegal dumping.
- ✓ 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	Potential Concern
Commercial Land use	No	Yes	High	Storage and use of hazardous materials
Residential- Above ground storage tanks	No	Yes	Moderate	Spills and leaks
Residential – Lawn care	Yes	Yes	Moderate	Improper use of fertilizes and pesticides
Residential- Septic Systems	No	Yes	Moderate	Improper disposal of hazardous materials, nitrates and microbial contaminants
Local roads	No	Yes	Moderate	Stormwater runoff, spills
DEP Tier classified release sites - #4-0000772 and #4-0014717	No	No	----	Monitor cleanup process of sites located just outside of your IWPA
Gas Stations with Underground Storage Tanks (USTs)	No	No	----	Educate owners on location of your water supply and BMPs for USTs

*** 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. **Commercial Land Use** - Commercial land uses often include use and storage of hazardous materials that can contaminate water supplies if improperly managed.
   Recommendations
- ✓ Contact commercial property owners and inform them of the location of your drinking water well.
- ✓ Educate owners of commercial properties on Best Management Practices (BMPs) for handling, storage and disposal of hazardous materials.
- ✓ Ensure hazardous materials are never disposed of into septic systems.

3. **Residential Development –** There is medium density residential development within the IWPA. Activities associated with residential development that can threaten drinking water supplies include septic systems, heating oil storage and lawn care.
   Recommendation
- ✓ If possible, contact residents in the IWPA about water supply protection. A factsheet, *Residents Protect Drinking Water*, is included with this report.

4. **Local Roads –** Bay State Road and Winthrop Street run through the IWPA. Runoff and spills from roads can contaminate public wells.
   Recommendations
- ✓ Mapping stormwater flows from roads can assist emergency response teams in the event of a spill.
- ✓ Periodically update your emergency response plan.

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

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. Anawan Junction is commended for replacing their contaminated well with a better protected source. Officials should review and adopt the key recommendations above and the following:

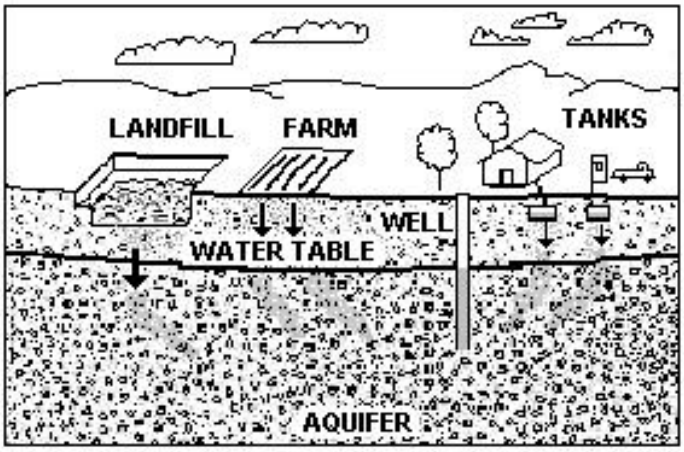

Figure 1: Example of how a well could become contaminated by different land uses and activities.

Priority Recommendations

Zone I

- ✓ Keep additional non-water supply activities out of the Zone I.
- ✓ Post water supply protections signs in the Zone I and IWPA.
- ✓ Prohibit public access to the well and pumphouse by locking facilities.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping or evidence of vandalism.
- ✓ Use Best Management Practices (BMPs) and restrict activities that could pose a threat to the water supply.
- ✓ If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.
- ✓ Keep road and parking lot drainage away from the well.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.

For More Information

Contact Isabel Collins in DEP's Worcester Office at (508) 946-2726 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 Use/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier and town boards.

Training and Education

- ✓ Educate tenants, residents and commercial property owners on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator. Post labels as appropriate on raw materials and hazardous waste.
- ✓ Ensure drinking water protection area signs are posted at key visibility locations.

Facilities Management

- ✓ Septic system components should be located, inspected, and maintained on a regular basis.

Planning

- ✓ Work with local officials in town to include the facility's IWPA in the Aquifer Protection District Bylaw and to assist you in improving protection.
- ✓ 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

The Department's Wellhead Protection Grant 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 that program. For additional information, please refer to DEP's web site. 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.

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
- Industrial Floor Drains brochure
- Source Protection Sign Order Form