



Source Water Assessment and Protection (SWAP) Report For Oakwood Park

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

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Table 1: Public Water System (PWS) Information

<i>PWS Name</i>	Oakwood Park
<i>PWS Address</i>	Monson Turnpike Road
<i>City/Town</i>	Ware, Massachusetts
<i>PWS ID Number</i>	1309001
<i>Local Contact</i>	Ms. Cecile Marquis
<i>Phone Number</i>	603-578-9200

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA (in feet)</i>	<i>Source Susceptibility</i>
Well #1	1309001-01G	266	683	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 Oakwood Park is a residential, mobile home park, located in a rural section of Ware. The park has approximately 65 trailers with 211 residents. The community is served by an on-site septic disposal with individual septic tanks serving multiple trailers, force mains and a central leachfield located outside of the Zone I. There is a single, 6-inch diameter, 220 feet deep well that serves the facility. The Zone I and Interim Wellhead Protection Area (IWPA) radii for the well are 266 feet and 683 feet, respectively.

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

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).

area has not been delineated. The protective areas have been calculated based on the metered water usage reported to the Department. The actual recharge area to the well may be significantly larger or smaller than the IWPA.

USGS mapping shows the area indicates coarse sand and gravel overburden with no indication of a confining, protective clay layer. The bedrock in the area is generally mapped as a biotite-feldspar rich gneiss of the Massabessic Gneiss Complex. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers, such as clay, that can prevent contaminant migration. At the time this report was prepared the water did not require and was not treated. For current information on 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. 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 several 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. **Aboveground storage tanks;**
3. **Septic system;**
4. **Residential homes; and**
5. **Transportation corridor.**

The overall ranking of susceptibility to contamination for the well is moderate, based on the presence of several moderate threat land uses or activities in the Zone I and IWPA, as seen in Table 2. The facility does have a Wellhead Protection Plan prepared by Northeast Rural Water Association.

1. Nonconforming activities in the Zone I – Currently, the water supplier does not own or control the entire Zone I area. 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. There are non-water supply activities occurring within the Zone I, such as structures (residents), parking, roadway, sewer force main at the time of the visit there were several vehicles parked

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
High Density Housing	Yes	Yes	Moderate	Use BMPs, encourage participation in household hazardous waste collection days. Prohibit or control vehicle maintenance.
Transportation Corridors and Parking	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from well
Aboveground Storage Tanks	Yes	Yes	Moderate	Require replacement, maintenance, containment and monitoring of tanks. Consider conversion to propane.
Septic system components	Yes	Yes	Moderate	Tanks, pressure main, leach field. See attached brochure

* 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 I. 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.

behind the abandoned residence. In addition, there was standing water in the well house with the distribution line under water. The facility has located the emergency generator and fuel outside of the Zone I and has not permitted any new trailers within the Zone I. However, the generator is a diesel fuel generator. The Park has a policy to not use any salt, pesticides or fertilizers in Zone I.

Recommendations:

- ✓ Continue the current controls for access to the wellhead area.
- ✓ Consider well replacement if existing threats cannot be mitigated.
- ✓ Continue current practice of no use or storage of pesticides, fertilizers or road salt within the Zone I.
- ✓ Raise the wellhead out of the pit and ensure that there is no standing water in the pit.

2. Aboveground Storage Tank (UST) – There are numerous ASTs located in the IWPA. Although the facility has been diligent in removing the emergency generator and fuel source to outside of the Zone I, the majority of the homes are located topographically upgradient of the well and have outdoor ASTs for fuel oil. If managed improperly, ASTs can be a potential source of contamination due to leaks, spills or overfills of the chemicals they store.

Recommendation:

- ✓ ASTs 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' plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding ASTs.
- ✓ Require all of the homes with tanks 10 years of age or older to be replaced or have secondary containment. All tanks must be painted and on a pad. Consider a requirement to convert to propane over time.

3. Septic Systems – The facility's septic system is located within the IWPA. The most significant threats from a septic system are from lack of maintenance and improper disposal of non-sanitary waste.

Recommendations:

- ✓ Provide 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.

- ✓ Prohibit septic tank cleaners, especially those with acids and solvents.

4. Transportation Corridors -- The Zone I and IWPA contain a municipal road, internal roads and parking. Transportation corridors can be a potential source of contamination from road salt and automotive leaks or spills. As storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential sources of contamination include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, etc.

Recommendations:

- ✓ Monitor parking areas and roads for accidental leaks and spills.
- ✓ Do not allow vehicle maintenance at the facility unless strictly limited and controlled.
- ✓ Continue the current practice of not using salt or deicers within the Zone I.
- ✓ Restrict access as is feasible.

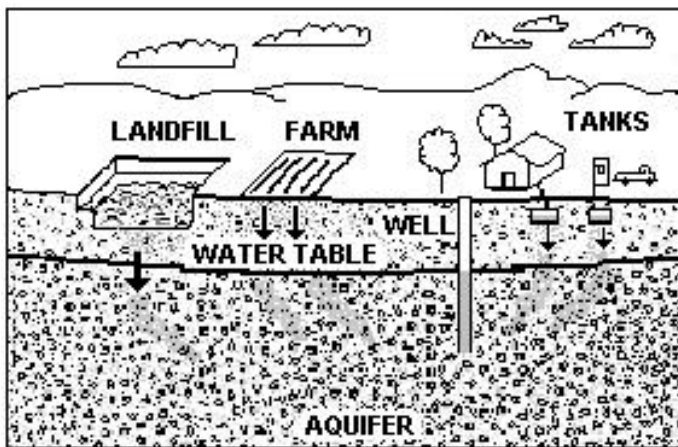


Figure 1: Example of how a well could become contaminated by different land uses and activities.

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 the town boards.

- ✓ Inspect the roadway near the water supply to ensure the runoff is directed away from the well.
- ✓ Work with the Town to have the road maintenance and runoff issues addressed as necessary.

Other potential threats noted during the site visit include vehicles stored within the Zone I behind the abandoned house. Encourage residents to utilize local household hazardous waste collection days and supply information about BMPs for household hazardous waste management.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. The Oakwood Park is commended for its staff's past efforts to protect the water supply. You are encouraged to review and adopt the key recommendations listed in the Wellhead Protection Plan, those listed above and those following:

Priority Recommendations:

- ✓ Remove as is reasonable, all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- ✓ Consider well relocation if Zone I threats cannot be mitigated; investigate the potential to acquire land in the event a new source must be developed.
- ✓ Prohibit public access to the well by locking facilities and installing a fence as necessary. Fencing is an eligible project under the competitive grant program.

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, check any above ground tanks for leaks, etc.
- ✓ Use BMPs within the Zone I and restrict activities that could pose a threat to the water supply.
- ✓ Continue policy of not using pesticides and fertilizers in Zone I.
- ✓ 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.
- ✓ Redirect road and parking lot drainage in the Zone I away from well.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Upgrade to propane for power sources in areas utilizing fuel oil.

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.

- ✓ Post drinking water protection area signs at key visibility locations away from the wellhead.
- ✓ 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.
- ✓ Upgrade all oil/hazardous material storage tanks to incorporate proper containment and safety practices.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on all facility property.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis. Provide technical information about proper disposal practices.
- ✓ Encourage the use of household hazardous waste drop off.

- ✓ Well casing should extend above ground and there should be no standing water around the wellhead. Install a passive drain if necessary. Take whatever steps are necessary to prevent flooding of wellhead.
- ✓ 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 Ware to include Oakwood Park's 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. Refer to the Wellhead protection Plan prepared for your facility and follow the recommendations.
- ✓ 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 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). On or about May 1 the new RFR is available and the application is due back on or about June 31. 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 Fact Sheet
- Your Septic System Brochure
- Pesticide Use Fact Sheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form