



# Massachusetts Department of Environmental Protection Source Water Assessment and Protection (SWAP) Report for Medsource Technologies

## 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 7, 2003

**Table 1: Public Water System (PWS) Information**

<i>PWS NAME</i>	<b>Medsource Technologies</b>
<i>PWS Address</i>	<b>69 Mill Lane</b>
<i>City/Town</i>	<b>Brimfield, Massachusetts</b>
<i>PWS ID Number</i>	<b>1043025</b>
<i>Local Contact</i>	<b>Mr. Joseph Landry</b>
<i>Phone Number</i>	<b>413-245-7144</b>

<i>Well Name</i>	<i>Source ID#</i>	<i>Zone I (in feet)</i>	<i>IWPA</i>	<i>Source Susceptibility</i>
Well #1	1043025-01G	175	471	High

## Introduction

We are all concerned about the quality of the water we drink. Drinking water sources may be threatened by many potential sources of contamination, including septic systems, road deicing, 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

Medsource Technologies is located in Brimfield, a small, rural community in south central, Massachusetts. The facility manufactures orthopedic devices and surgical instruments. Brimfield does not have public water or municipal wastewater sewers available. Therefore, the facility is served by an on-site water supply and septic disposal. The facility is a registered small quantity hazardous waste generator (SQG).

The total staff is approximately 85 people per day and is served by a single potable

### 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).

supply well (01G) located at the facility. The well is located within an older building at the facility and is a 6-inch diameter, bedrock well that is approximately 380 feet deep.

The Zone I is the protected 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 (Zone II) recharge area 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 this facility's well are 175 feet and 471 feet, respectively, based on one year of metered water use. Review of currently available data indicates that normal water use may, at times may be greater than that used for the initial Zone I determination.

The overburden in the area is mapped as a relatively thin layer (0 to 50 feet thick) of sand and gravel (stratified drift) covering glacial till and bedrock. The overburden was likely deposited during the recession (melting) of the glaciers some 14,000 to 18,000 years ago. The bedrock in the area is mapped as a sulfidic schist of the Partridge Formation. There is no evidence of protective barrier of either thick till or of a confining, protective clay layer 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. Please refer to the attached map of the Zone I and IWPA.

The water from the well is not treated prior to distribution at this time. For current information on water quality monitoring results, please contact the Public Water System contact person listed above in Table 1. Refer to Table 2 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 protection areas for Well #1 includes the entire facility including the septic system, chemical storage and use, fuel storage (AST), the road, the parking area and residences.

### Key issues include:

1. **Non-conforming activities within Zone I,**
2. **Residential/commercial land uses with on-site septic disposal**
3. **Transportation corridors,**
4. **Hazardous materials storage and use.**

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

Potential Contaminant Sources	Zone I	IWPA/ Zone II	Threat	Comments
Non-conforming Zone I	--	--	--	Non-conforming uses in Zone I
Hazardous materials storage and use	Yes	Yes	High	Continue the use of BMPs and coordinate with emergency responders.
SQG	Yes	Yes	Low	Hazardous materials/SQG
Septic system	No	Yes	Moderate	Microbial threat and potential improper disposal of hazardous materials

\* -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/](http://www.state.ma.us/dep/brp/dws/).

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Transportation corridor and parking	No	Yes	Moderate	Limit road deicing materials and monitor parking areas.
Transformer (ground mounted)	Yes	Yes	Low	Although most transformers today do not contain PCBs the oils may pose a threat due to the proximity to the well.

\* -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/](http://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.

The overall ranking of susceptibility to contamination for Medsource water system is high, based on the presence of at least one high threat ranked land use or activity in the Zone I and IWPA. However, Medsource is commended for their diligent management of hazardous materials on-site. Please refer to Table 2 for more details.

**1. Non-conforming activities within Zone I** – Currently, the water supplier does own the entire Zone I area, however, the activities conducted within the Zone I are non-conforming and pose a threat to the water supply. Please note that systems not meeting DEP Zone I requirements must receive DEP approval and address Zone I activities prior to increasing water use or modifying systems. The well is located within one of the facility's buildings. Medsource is a registered Small Quantity Hazardous Waste Generator, and heats with fuel oil utilizing one aboveground storage tank (AST) that is located outside of the building. There were no floor drains observed. The parking area is paved and utilizes drywells.

**Recommendations:**

- V Consider relocation of the well if potential threats cannot be mitigated and water quality is impacted by activities.
- V To the extent feasible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements. Prohibit new non-water supply activities in the Zone I.
- V Where it is feasible, remove all hazardous materials from the Zone I. Continue current good housekeeping practices and the use of BMPs for the storage, use, and disposal of hazardous materials.
- V Continue to carefully monitor the delivery, handling and storage of chemicals and products.
- V Inspect the well casing and cap regularly to ensure it is sanitary and watertight.

**2. Residential Land Uses** – The IWPA for Well #1 has low-density residential land use. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **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.
- **Heating Oil Storage** - 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.
- **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 automotive leaks,

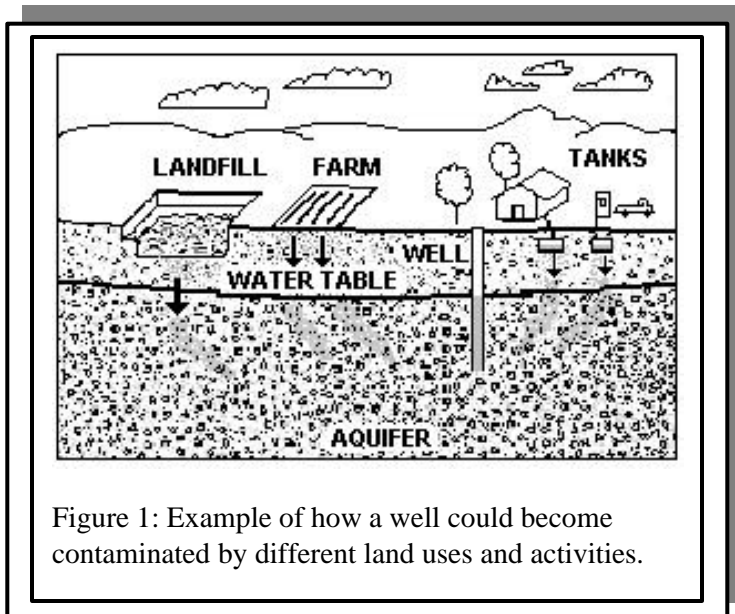


Figure 1: Example of how a well could become contaminated by different land uses and activities.

maintenance, washing, or accidents. Visit the Nonpoint Source pollution web site at <http://www.state.ma.us/dep/brp/wm/nonpoint.htm> for additional information.

**Residential Land Use Recommendations:**

- ✓ Educate residents on best management practices (BMPs) for protecting water supplies. Consider distributing the fact sheet “Residents Protect Drinking Water” available in Appendix A and online at the website [www.mass.gov/dep/brp/dws/protect.htm](http://www.mass.gov/dep/brp/dws/protect.htm), which provides BMPs for common residential issues.

**3. Transportation corridor** – Local roads and part of State Route 19 is located within the IWPA and the access and parking areas for the facility are within Zone I as well. Accidents and normal use and maintenance of roads pose a potential threat to water quality. Catch basins transport stormwater from roadways and adjacent properties to the ground, streams, rivers or reservoir. As flowing stormwater travels, it picks up de-icing materials, petroleum chemicals and other debris on roads and

contaminants from streets and lawns. Common potential contaminants in stormwater originate from automotive leaks, automobile maintenance and car washing, accidental spills as well as waste from wildlife and pets. The facility is served by direct recharge of stormwater to the overburden aquifer through drywells.

**Recommendations:**

- ✓ Prepare an Emergency Response Plan that includes coordination between the emergency responders to be sure they are aware of the location of your well.
- ✓ Monitor the parking area for spills especially during deliveries.

**4. Hazardous Materials Storage and Use** – Medsource utilizes hazardous materials and generates hazardous waste. There were no floor drains observed during the assessment and the hazardous materials appeared to be handled appropriately. Spill kits and signs designating areas of storage were noted during the visit. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be allowed to enter a catch basin, septic system or floor drain leading directly to the ground.

**Hazardous Materials Storage and Use Recommendations:**

- ✓ Continue current management of hazardous materials on-site and consider relocation of the well to minimize any potential threat from an accidental release at the site.
- ✓ Contact the Bureau of Waste Prevention (John Downes – 413-755-2231) if you have any question regarding disposal of hazardous materials.
- ✓ Aboveground storage tanks should be located on an impermeable surface, and also contained in an area large enough to hold 110% of the complete liquid volume, should a spill occur.
- ✓ Monitor deliveries of oil and consider sleeving the lines to prevent accidental release.

**3. Protection Recommendations**

Implementing protection measures and best management practices (BMPs) will further enhance the protection of the well and minimize its susceptibility to contamination. Review and consider adopting the key recommendations above and the following:

**Priority Recommendations:**

- ✓ Consider relocation of the well if potential threats cannot be mitigated.
- ✓ Continue current use of BMPs and management practices.

**Zone I:**

- ✓ Prohibit any new non-water supply activities from the Zone I.

### **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/](http://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/](http://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, town boards, and the local media.

- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of access or vandalism.
- ✓ Continue to monitor use and handling of hazardous materials.
- ✓ 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.
- ✓ Inform neighbors and consumers regarding BMPs with respect to household hazardous materials handling and disposal and septic system maintenance.

### **Planning:**

- ✓ Work with local officials in Brimfield to develop an Aquifer Protection District and Bylaws for compliance with 310 CMR 22.000 to include Medsource and other IWPA's in that district.
- ✓ 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.

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 Areas
- Recommended Source Protection Measures Fact Sheets
- List of Regulated facilities in the protection areas

## APPENDIX B: REGULATED FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREAS

### DEP Permitted Facilities

DEP Facility Number	Facility Name	Street Address	Town	Permitted Activity	Activity Class	Facility Description
	Medsource Technologies (formerly Brimfield Precision)	Mill Lane Road	Brimfield	Hazardous Waste Generator	SQG	Manufacturing facility

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities may be located within the water supply protection area(s) that should be considered in local drinking water source protection planning.