Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
For
Mount St. Mary's Abbey

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

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Table 1: Public Water System (PWS) Information

PWS NAME	Mount St. Mary's Abbey
PWS Address	300 Arnold Street
City/Town	Wrentham, Massachusetts
PWS ID Number	4350003
Local Contact	Sister Marcia Trinque
Phone Number	(508) 528-1282

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Old Well	4350003-01G	400	2,640	High
Well #2 New Bedrock Well	4350003-02G	400	2,640	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

The drinking water supply well for Mount St. Mary's Abbey is located in the Town of Franklin near the Franklin/Wrentham town line. Water is drawn from two groundwater wells with Zone I radii of 400 feet and an Interim Wellhead Protection Areas (IWPAs) radii of one-half mile (2,640 feet). The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration. Please refer to the attached map to view the boundaries of the Zone Is and IWPAs.

Water from the wells is not treated before entering the distribution system. For current

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).

information on 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. Drinking water monitoring reporting data are also available on the web at http://www.epa.gov/safewater/ccr1.html.

Section 2: Land Uses in the Protection Areas

The land uses in the IWPAs is mostly a mixture of forest, agricultural and residential (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2.

Key Land Uses and Protection Issues include:

1. Zone I
2. Residential Land Uses
3. Underground Storage Tanks
4. Agricultural Uses
5. Presence of Oil or Hazardous Material Contamination Site

The overall ranking of susceptibility to contamination for the system is high, based on the presence of at least one moderate threat land use within the water supply protection areas, as seen in Table 2.

1. Zone I – The Zone I for the wells are circular areas with 400-foot radii that is centered at the wellheads. Massachusetts drinking water regulations (310 CMR 22.00) require public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. Only water supply activities are allowed in the Zone I. The Zone Is are owned by the public water system. Non-water-supply uses within the Zone I for the Old Well include an underground storage tank (UST) and an above ground storage tank (AST) containing fuel oil, buildings (other than the pump house), garages, parking spaces, and storage of 5-gallon gasoline containers for maintenance equipment. An electric utility transformer is located on the utility pole outside of the pump house, although most transformers have been upgraded and no longer use PCBs, the water supplier should verify that the transformer does not contain PCBs. The Zone I for the New Bedrock Well contains agricultural activities

Zone I Recommendations:

- ✓ The floor drain in the pump house should be registered with the Underground Injection Control (UIC) Program in the DEP's Bureau of Resource Protection.
- ✓ Ensure that the electric transformer located outside of the pump house does not

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Manure Spreading	No	Yes	High	Spreading of manure provides a source for nitrate/nitrite contamination of groundwater
Pesticide Storage or Use	No	Yes	High	Pesticides: leaks, spills, improper handling, or over-application
Underground Storage Tank	Yes	Yes	High	Stored materials: spills, leaks, or improper handling
Residential – Septic Systems	No	Yes	Moderate	Educate residents on proper septic system operation and maintenance.
Residential – Lawn Care	No	Yes	Moderate	Educate residents on proper lawn care techniques.
Above Ground Storage Tanks	Yes	Yes	Moderate	Stored materials: spills, leaks, or improper handling
Cemetery	No	Yes	Moderate	Historic embalming fluids

*** -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.

contain PCBs. Your electric utility company can assist in making this determination.

✓ Keep any new non water supply activities out of the Zone I.

2. Residential Land Uses – A portion of the IWPA area consists of residential land use. None of the areas have public sewers, therefore, all use on-site septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can 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.
- **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** – Catch basins transport stormwater from roadways and adjacent properties to the ground. 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 the attachments and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMPs for common residential issues.

✓ Work with planners to control new residential developments in the water supply protection areas.

✓ Promote BMPs for stormwater management and pollution controls. Visit DEP's web site for additional information and assistance at mass.gov/dep/brp/wm/nonpoint.htm.

3. Underground Storage Tanks – An Underground Storage Tank (UST) containing fuel oil is located within the Zone I. The UST is double walled, has monitoring with alarm, and is placed within a cement vault. If managed improperly, USTs can be a potential source of contamination due to leaks or spills of the chemicals they store.

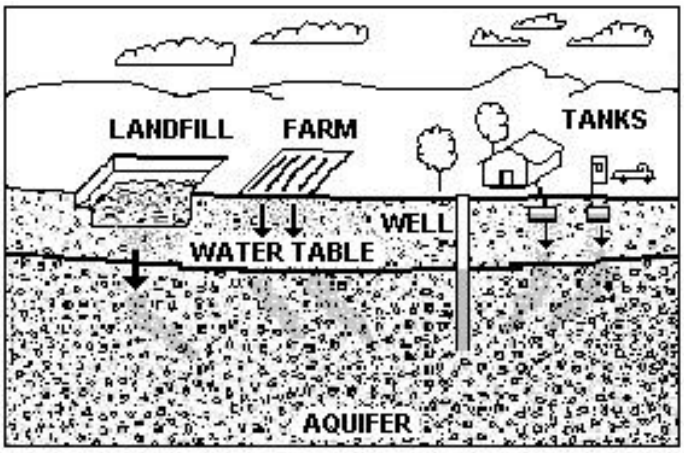

Figure 1: Example of how a well could become contaminated by different land uses and activities.

Recommendation:

✓ Any modifications to the UST must be accomplished in a manner consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding USTs.

✓ The Department recommends that you inspect, maintain and replace or upgrade components of your heating system regularly. Inspect oil lines (i.e. furnace to tank) for corrosion or pitting and replace copper lines with lines encased in a protective sleeve or install UL listed oil safety valves to prevent leaks.

✓ During refilling of the UST, ensure that the operator of the oil transport tanker does not leave the vehicle area while the UST is being filled.

4. Agricultural Uses – Crop lands and an apple orchard exist

For More Information:

Contact Isabel Collins in DEP's Lakeville 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/Associated Contaminants Matrix

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

within the IWPA. Over-application of pesticides and fertilizers on crop lands and orchards is a potential source of contamination to the water supply. Manure spreading is often applied to hay fields. Nitrate and nitrite contamination from manure spreading applications could potentially impact the water quality at the well. Mount St. Mary's Abbey does not use pesticides on the hay fields that it owns.

Agricultural Use Recommendations:

- ✓ Work with farmers in your protection areas to make them aware of your water supply and to encourage the use of a US Natural Resources Conservation Service farm plan to protect water supplies.
- ✓ Work with farmers to investigate grants and loans designed to protect surface and groundwater. See http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPFct.pdf for more information on the USDA Environmental Quality Incentives Program (EQIP). Information on the MA Department Agricultural Resources' Agricultural Environmental Enhancement Program (AEEP) is available on the web at http://www.state.ma.us/dfa/programs/aeep/.

5. Presence of Oil or Hazardous Material Contamination Sites – Based upon a DEP web site database query (http://www.state.ma.us/dep/bwsc/sitelist.htm), the IWPA area contains a DEP Tier 1D Classified Oil and/or Hazardous Material Release Site indicated on the map as Release Tracking Number (RTN) 4-0013514. The site is listed as an oil release site and is located on Mount St. Mary's Abbey property. See for a listing of these

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil release site.
- ✓ If the oil spill associated with the site listed as RTN #4-0013514 is identical to the spill associated with the recently closed site listed as RTN #4-0014509, then Mount St. Mary's Abbey should contact DEP's Bureau of Waste Site Cleanup (BWSC) in the Lakeville office to determine whether RTN #4-0013514 can be closed out.

Refer to Table 2 for a complete list of land uses. Identifying potential sources of contamination is an important initial step in protecting your drinking water sources. Further local investigation will provide more in-depth information and may identify new land uses and activities that are potential sources of contamination. Once potential sources of contamination are identified, specific recommendations like those below should be used to better protect your water supply.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the wells' susceptibility to contamination. Mount St. Mary's Abbey is commended for current protection measures including:

- Using only sand on roads and driveways during winter storm events.
- Having an approved wellhead protection plan.

Mount St. Mary's Abbey should review and adopt the key recommendations above and the following:

Zone I:

- ✓ Keep non-water supply activities out of the Zone I.
- ✓ Investigate if the transformer next to pumphouse contains PCBs.
- ✓ 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.

Facilities Management:

- ✓ DEP records indicate that the floor drain in the pump house is not registered with the UIC Program. Mount St. Mary's Abbey should contact the UIC Program at (617) 348-4014 to register the floor drain. Additional information about the

UIC Program is available on-line at http://www.state.ma.us/dep/brp/dws/uic.htm.
- ✓ Septic system components should be located, inspected, and maintained on a regular basis.

Planning:
- ✓ Work with local officials in Wrentham and Franklin to include the IWPA in Aquifer Protection District Bylaws 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.

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 Factsheet
- Your Septic System Brochure
- Pesticide Use Factsheet
- Industrial Floor Drains Brochure