Source Water Assessment Program (SWAP) Report For Simon's Rock of Bard College

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

PWS Name	**Simon's Rock of Bard College**
PWS Address	**84 Alford Street**
City/Town	**Great Barrington, Massachusetts**
PWS ID Number	**1113017**
Local Contact	**Mr. John Verones, Superintendent**
Phone Number	**413-528-7239**

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well 1	1113017-01G	100	406	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential contaminant sources, 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

Simon's Rock of Bard College is a liberal arts college with a total staff and student population of approximately 400 people. The school is divided into two campuses; the Main Campus and the West Campus. The Main Campus purchases water from the Great Barrington public water system. The West campus contains only two academic buildings, the Leibowitz Building and the Arts and Recreation Center. Well 1 is the sole source of water for the West Campus and is on the north side of the Leibowitz Building approximately 10 feet from the building. The Zone I protective radius for Well 1 is 100

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).

feet and the Interim Wellhead Protection Area (IWPA) radius is 406 feet. The protective radii were calculated based on the Title 5 estimated daily water use of 290 gallons per day (gpd). Please refer to the attached map that shows the Zone I and IWPA.

Well 1 is a 6-inch diameter well drilled to a final depth of approximately 315 feet. There is no record of final construction of the well or of the materials encountered during drilling. Geologic mapping of the area indicates the overburden material at the well location consists of sand and gravel, stream deposits but does not indicate the depth of the deposits. The bedrock is mapped as carbonate (limestone and dolomite) rocks of the Stockbridge Group. Bedrock wells drilled in these conditions are considered highly vulnerable to potential contamination from the ground surface because there is no significant barrier to prevent surface contamination form migrating into the bedrock aquifer.

Municipal sewer partially serves the facility. The Leibowitz building is connected to the town sewer while the Arts and Recreation facility utilizes an on-site septic disposal system. According to the facility manager, the school intends to connect to the municipal sewer in the future.

The well falls within the Zone II delineated for the Great Barrington Green River Infiltration Gallery. Therefore, if the Town adopts protective overlay district and bylaws for the Green River source Zone II, the well for Simon's Rock will fall within that district.

Water Quality

The Simon's Rock of Bard College West Campus well water does not require and does not have treatment at this time. For current information on monitoring results, please refer questions to the water supply contact listed above in Table 1.

2. Discussion of Land Uses in the Protection Areas

A few land uses and activities within the drinking water supply protection areas are potential sources of contamination. The overall ranking of susceptibility to contamination for the well is moderate, based on the presence of at least one moderate threat land use or activity in the Zone I and IWPA, as seen in Table 2.

Key issues include:

1. **Nonconforming Activities in Zone I**
2. **Septic System components**

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Parking lot, driveway & roads	Yes	Yes	Moderate	Limit road salt usage and provide drainage away from wells.
Septic System	No	Yes	Moderate	See septic systems brochure in the appendix.
Very Small Quantity Generator of Hazardous Waste	No	Yes	Low	Art wastes are collected and transported to a hazardous waste storage area on the main campus
Structures	Yes	Yes	-	Non-water supply activities in Zone I
Low Density Residential Uses	No	Yes	Moderate	Residential use of fertilizers, pesticides and household 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/.**

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-feet 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.

1. **Zone Is –** Currently, the well does not meet DEP's restrictions, that allow only water supply related activities in Zone I. The facility's Zone I contains school buildings, roads, parking areas and septic system components. Please note that systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use, modifying the system or conducting any new non-water supply related activity within the Zone I.

   The school has a comprehensive waste management plan prohibiting the disposal of anything other than sanitary waste through the septic system. They routinely collect the waste products from the art studios and dispose of them appropriately.

   Recommendations:
   - ✓ Do not conduct any new activities within Zone I.
   - ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
   - ✓ If the existing threats cannot be mitigated, and pose increased threat, consider investigating an alternative site for a new well and connection to the Town sewer system.

2. **Parking and roadways –** Parking for the buildings is on a gravel lot within Zone I and there are public roadways in Zone I and the IWPA. Stormwater runoff picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants in runoff include lawn chemicals, pet waste, leakage from dumpsters, and contaminants from vehicle leaks or accidents.

   Recommendation:
   - ✓ Manage storm runoff from parking areas so that it flows away from the well. Consider paving the parking area and installing storm drains with oil water separator and sediment sumps.
   - ✓ Minimize automobile parking in Zone I, as feasible.

Other land uses identified during the assessment include Very Small Quantity Generator of Hazardous Waste and low-density residential development. The college has a comprehensive Emergency Response Plan and a hazardous material handling policy and plan. Diligence in compliance with the VSQG requirements and education of staff and students will serve to protect the public water supply. Implementing the following recommendations will also reduce the system's susceptibility to contamination.

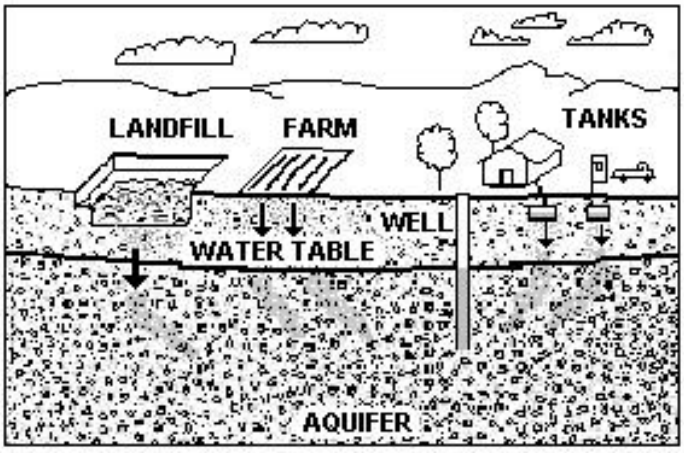

Figure 1: Example of how a well could become contaminated by different land uses and activities.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will further reduce the well's susceptibility to contamination. The staff of the Simon's Rock of Bard College is commended for current diligence and the protection measures in place such as the arts material handling and the partial connection to the municipal sewer. The school, in conjunction with local officials should review and adopt the key recommendations above and the following:

Priority Recommendations:

- ✓ Connect to municipal wastewater disposal system.
- ✓ Post drinking water protection area signs in visible areas along IWPA. Inform faculty, staff and students regarding appropriate disposal and materials handling.

Zone I and IWPA:

- ✓ Keep new non-water supply activities out of the Zone I.
- ✓ Monitor all non-compliant activities in the Zone I.

For More Information:

Contact Catherine V. Skiba in DEP's Springfield Regional 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 provided to the public water supplier, town boards, the town library and the local media.

- ✓ Consider well relocation if Zone I threats cannot be mitigated.
- ✓ Consider connecting to the Great Barrington sewer system and water system.
- ✓ Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, check parking areas for accidental leaks, etc.
- ✓ Maintain road and parking lot drainage.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Educate the students and staff about protection of the water supply.

Training and Education:

- ✓ Continue staff training on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, faculty 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.
- ✓ Incorporate groundwater education into school curriculum as appropriate.
- ✓ Communicate with your community to ensure that stormwater runoff from roads is directed away from the well and is treated according to DEP guidance.

Facilities Management:

- ✓ Maintain current standard operating procedures regarding proper storage, use and disposal of hazardous materials. To learn more, see the hazardous materials guidance manual at www.state.ma.us/dep/brp/dws/dwspubs.html.
- ✓ Continue to ensure non-sanitary wastewater discharges do not go to the on-site septic systems. An alternative to pick-up and disposal for art studios is discharge to a tight tank or connect to a sanitary sewer.
- ✓ Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property.
- ✓ Septic system components should be inspected and maintained on a regular basis. Refer to the appendices for more information regarding septic systems.
- ✓ Concrete, surface sanitary seals around wellheads should slope away from well and the well casing should extend above ground.

Planning:

- ✓ Contact local officials in Great Barrington to be sure they are aware that your well is located within the Zone II of the Town's supply. Any Aquifer Protection District Bylaws would also 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.
- ✓ Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a potential contaminant threat inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Funding:

The Department's Wellhead Grant Protection 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 2001 "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 (grant application) for the Grant program (RFR). The RFR is generally available and due back into the DEP on or about May 1 and June 30, respectively. 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.

3. 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