Massachusetts Department of Environmental Protection
Source Water Assessment Program (SWAP) Report
for
Kolburne School

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	**Kolburne School**
PWS Address	**Southfield Road**
City/Town	**New Marlborough, Massachusetts**
PWS ID Number	**1203003**
Local Contact	**Mr. William Enser**
Phone Number	**413-243-1416**

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
B urritt Well	1203003-01G	238	585	Moderate
Intake Well	1203003-02G	160	456	High
Main Administration Well	1203003-03G	104	424	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. School officials, 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 school.

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

Kolburne School is a year round residential school located in the community of New Marlborough, for children age 8 through 14 with behavior difficulties and learning disabilities. New Marlborough is a small rural community in southern Berkshire County along the Connecticut border. The facility population is approximately 130 staff and students. New Marlborough does not have municipal water or wastewater disposal, therefore the facility is served by on-site water supply and on-site septic disposal. The

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.

school maintains three active, independent bedrock well sources that serve different parts of the systems: Burritt Hall well (1203003-01G); Intake Office well (1203003-02G); and Main Office well (1203003-03G). Burritt Hall well is a 6-inch diameter, 260 feet deep bedrock well that is located in a pit, behind the dorm and serves two dorms, a dining room and classroom building. The Intake Office well is a 6-inch diameter, 69 feet deep bedrock well that is located in a pit, behind Stanley Hall and serves six buildings. The Main Administration Office well is a 6-inch diameter, 205 feet deep bedrock well that is in a manhole located in a field behind the maintenance facility; the well serves the main office, the maintenance facility and the director's residence, Pine Edge. The wells and distribution systems are not interconnected.

The Zone I for a well is the protected area immediately surrounding the wellhead while the Interim Wellhead Protection Area (IWPA) provides an interim protection area for a water supply well when the actual recharge area (Zone II) has not been delineated. The actual recharge area to the well may be significantly larger or smaller than the IWPA. The Zone I and IWPA for the Burritt Hall well are 238 feet and 585 feet, respectively; the Zone I and IWPA radii for Intake Well are 160 feet and 456 feet, respectively; and the Zone I and IWPA radii for Main Administration Well are 160 feet and 456 feet, respectively. The protective radii are based on metered water use from the wells.

The school is located in the Massachusetts Berkshire highlands; the bedrock is mapped as the gneiss of the Taconic-Berkshire Zone, an area of highly complex folds and faults. The overburden is a relatively thin layer of till (ground moraine) with bedrock commonly exposed. There is no record of a confining, protective clay layer or thick till in the vicinity of the wells. 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.

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Residential School	01G & 02G	01G & 02G	Moderate	Use BMPs for all activities near the wells.
Transformers	All	All	Low	MODF (oil) – potential leaks. Confirm that all transformers use non-PCB MODF.
Maintenance facilities/mini-bike shop	03G/02G	03G	High	Use BMPs for handling, storage and use of hazardous materials.
Parking lots, internal transportation corridors	02G	All	Moderate	Request limited use of road salt and provide drainage away from well.
Septic system components	01G & 02G	All	Moderate	Use BMPs to maintain systems and prohibit disposal of non-sanitary waste to systems. School utilizes a dry well for gray water at one dorm.
UST/AST	01G & 02G	All	High/ Moderate	Continue to upgrade and maintain storage tanks as appropriate and monitor all use and deliveries
Hazardous materials use and storage (VSQG)	All	--	Moderate	Household hazardous materials and VSQG

*** -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/.**

Water from the wells serving the facility is not treated at this time. 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 Is and IWPAs and Table 1 for additional information regarding the location of the wells 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. **Non-conforming Zone I,**
2. **Institutional use - residential school,**
3. **Underground and above ground storage tanks**
4. **Transportation corridors,**
5. **Hazardous materials management.**

The overall ranking of susceptibility to contamination for the system is high, based on the presence of one or more high ranking land uses or activities in the Zone I and IWPA of at least one of the sources, as seen in Table 2.

1. Non-conforming Zone I– The Burritt and Intake wells are non-conforming to current DEP regulation that limits activities within Zone I to water supply related or other non-threatening activities. The Zone I for the Main Administration Well 03G, is conforming, however the maintenance garage is on the edge of the Zone I. Many sources were developed prior to DEP Zone I restrictions and are grandfathered sources. DEP approval is required prior to increasing water use or modifying systems for sources that are not in conformance with Zone I requirements.

Recommendations:

- Continue to monitor activities within the Zone I and prohibit any new non-water supply activities in Zone I.
- Use Best Management Practices for handling all household hazardous materials, stormwater runoff, and septic system maintenance.
- Consider relocation of wells if potential threats cannot be mitigated and water quality is impacted.

2. Institutional use – Residential school - The facility is a residential school with all associated activities including dormitories, infirmary, recreational facilities, classrooms, maintenance facilities, parking, etc. Maintenance and services provided to the facility include all household hazardous materials including petroleum products for maintenance vehicles (lawn mowers, tractors, etc) paints and cleaning materials.

Recommendations:

- Use BMPs for activities within close proximity to the wells.
- Continue monitoring and managing stormwater runoff, directing it away from the wellhead.
- Do not use pesticides or fertilizers within the Zone I of the wells. Utilize Integrated Pest Management (as practical) on campus to minimize the use of pesticides and nutrients in fertilizers.

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.

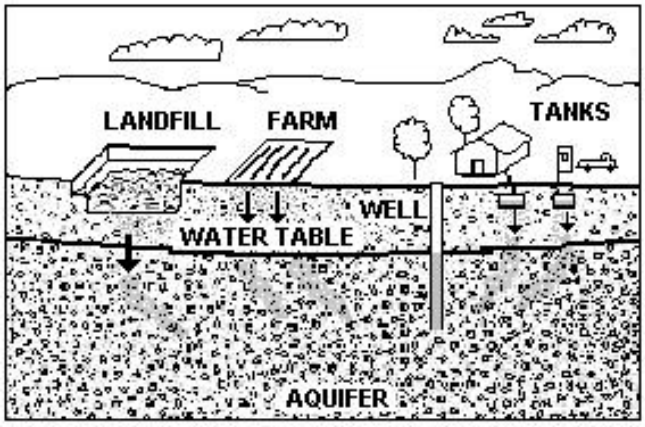

Figure 1: Example of how a well could become contaminated by different land uses and activities.

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).

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 local town boards.

3. Underground and above ground storage tank (UST/AST) – The school has two 500-gallon USTs with fuel oil and several ASTs with gasoline and fuel oil. If managed improperly, USTs and ASTs and their associated fuel lines can be a potential source of contamination due to leaks or spills of the chemicals they store.

Recommendation:

- Any modifications to the USTs and ASTs 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 storage tanks. Monitor all activities associated with the products especially during delivery.

4. Transportation corridors – There are internal walkways/access roads within the Zone Is and/or IWPAs of the wells. Roadway construction, maintenance, and typical use, even on low use roads can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals such as fuel oil. De-icing materials, automotive chemicals and other debris on roads and in parking areas, are picked up by stormwater and wash into catchbasins or to swales. Stormwater management issues on town roads should be addressed in cooperation with the Town.

Transportation Corridor Recommendations:

- Identify stormwater drains and the drainage system along transportation corridors.
- Work with local emergency response teams to ensure that any spills within the protection areas can be effectively contained.
- Use minimal road deicers within the protective areas, and monitor the parking lot and roadside for spills and leaks.

5. Hazardous Materials Storage and Use – The school has small amounts of hazardous materials associated with maintenance at the school. The facility is registered as a Very Small Quantity Generator of hazardous waste and maintains a locked storage facility near the Main Office. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be allowed to discharge into a floor drain leading to the ground or directly to the ground. This includes floor drains in boiler rooms. The facility uses propane as a fuel source. However, floor drains in areas that hazardous materials make be discharged to, including boiler rooms, may not discharge to the septic system and should be connected to a tight tank. Contact the DEP Underground Injection Control Program (Rick Larson at 413-755-2207) if you require additional information.

Hazardous Materials Storage and Use Recommendations:

- Educate staff on best management practices for storage, use and handling of hazardous materials for protecting water supplies.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the wells' susceptibility to contamination. Kolburne School is commended for improving management of hazardous materials and is encouraged to continue reviewing and evaluating storage, use and disposal of hazardous materials on campus. Continue monitoring activities in the protection areas and review and adopt the key recommendations above and as follows:

Priority Recommendations:

- Review activities and practices at the maintenance facility. Continue use of BMPs for use and handling of hazardous materials.
- Maintain septic systems and prohibit inappropriate disposal into the systems.

Zone I:

- Prohibit any new non-water supply activities from the Zone Is.
- Conduct regular inspections of the Zone Is. Look for evidence of leaks or spills and regularly inspect the integrity of the well caps and seals around the wells.
- Do not use or store pesticides, fertilizers or hazardous materials within the Zone I.

Training and Education:

- Train staff on proper hazardous material use, disposal, emergency response, and best management practices, including 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 away from the immediate area of the wells and at locations where BMPs should be used.

Facilities Management:

- Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property. Do not use pesticide in Zone I. Incorporate an Integrated Pest Management (IPM) approach into your pest management programs. IPM is an ecologically-based approach to pest control that links together several related components, including monitoring and scouting, biological controls, mechanical and/or other cultural practices, and pesticide applications. By combining a number of these different methods and practices, satisfactory pest control can be achieved with less impact on the environment.
- Ensure that stormwater runoff is directed away from the water supplies.

Planning:

- Request that the town develop a Wellhead Protection District and associated bylaws and request that the IWPA for your and other water systems be include in the protection area.
- Work with local officials in New Marlborough to include the School Zone Is and the IWPAs in their emergency planning 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 encourage discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Areas
- Recommended Source Protection Measures Fact Sheet