Massachusetts Department of Environmental Protection

Source Water Assessment & Protection Program (SWAP) Report For Eastham Police Facility

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:
August 2004

Table 1: Public Water System (PWS) Information

PWS NAME	Eastham Police Facility
PWS Address	2500 State Highway
City/Town	Eastham, Massachusetts
PWS ID Number	4086052
Local Contact	Bob Varley, Certified Operator
Phone Number	508 240-5900

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	4086052-01G	163	458	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 Area

1. Description of the Water System

Eastham Police Station (the "facility") is a public water supply currently serving the Eastham police station, fire department facility and the recreation office. The facility is served by Well #1, which is located in the northeast corner of the property. Well #1 is a 4-inch diameter well drilled to a final depth of 61 feet. The well is located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration. The average daily withdrawal for the well is limited to 2618 gallons per day, based on the current Zone I of 163 feet and Interim Wellhead Protection Area (IWPA) of 458 feet. The IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be

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).

significantly larger or smaller than the IWPA (refer to the attached map of the Zone I and IWPA). The well serving the facility has no treatment at this time. 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 via EPA's Envirofacts website at: http://www.epa.gov/enviro/html/sdwis/sdwis_query.html .**

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2. Discussion of Land Uses in the Protection Areas

There are a number of land uses and activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **inappropriate activities in Zone I;**
2. **underground storage tank (UST) for gasoline;**
3. **six (6) aboveground storage tanks (AST) with heating oil and emergency generator with diesel fuel tank;**
4. **floor drains (connected to a tight tank);**
5. **septic system;**
6. **athletic fields and lawn care; and**
7. **hazardous waste generation and storage.**

1. Zone I – Currently, the well does not meet DEP's requirements, which allow only water supply related activities in Zone I. The facility's Zone I contains the police station, parking areas, impounded car area, and catch basins. The public water supplier does not own and/or control all land encompassed by the Zone I. The Department records indicate that the Town of Eastham owns only a portion of the 163-foot Zone I to the north and east of the well. The Cape Cod National Seashore owns the Zone I land north and east of the well. It is unlikely that future development would occur in an area under the control of the National Park Service. Systems not meeting DEP Zone I requirements must get DEP approval and address Zone I issues prior to increasing water use or modifying systems.

Recommendations:

- To the extent feasible, remove all non-water supply activities from the Zone I to comply with DEP's Zone I requirements.
- Do not use or store pesticides, fertilizers or road salt within the Zone I.
- Monitor your water usage. Keep your total water consumption below the average of

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

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Underground Storage Tank	No	Well #1	High	8000 gallon gasoline UST
Storage and Use of Hazardous Materials	No	Well #1	High	Very Small Qty Generator of Waste Oil
Aboveground Storage Tank	No	Well #1	Moderate	4 heating oil storage tanks without secondary containment
Floor Drains	No	Well #1	-	1 floor drain in the police station and 8 floor drains in the fire station have been connected to a tight tank
Storm Water (parking lot, & roads)	Well #1	Well #1	Moderate	Limit road salt usage and provide drainage away from wells.
Athletic Fields	No	Well #1	Moderate	fertilizer and pesticide use
Septic System	No	Well #1	Moderate	Refer to septic system brochure in the appendix.
Vehicle Washing	No	Well #1	Low	tight tank for vehicle washing

*** -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.

2618 gallons per day to maintain compliance with the calculated Zone I and IWPA protective radii.

- Prohibit public access to the well by locking facilities and posting signs.
- Conduct regular inspections of the Zone I. Look for illegal dumping and evidence of vandalism.
- The police station has a storage area for impounded cars immediately adjacent to Well #1. The Department recommends that an alternative storage location be found or redirect storm water from the vehicle storage area out of the Zone I.

2. **Underground Storage Tank -** Within the IWPA, an 8000-gallon UST containing gasoline is located approximately 250 feet south of the well. The UST was installed in 1989 and is a double walled fiberglass tank. If managed improperly, USTs can be potential sources of contamination due to leaks or spills of the chemicals they store.
   Recommendation:
- Consult with the local fire department for specific code requirements regarding your UST. Any modifications to the UST must be accomplished in a manner consistent with Massachusetts' plumbing, building, and fire code requirements.

3. **Aboveground Storage Tank (AST) in IWPA –** During the site visit, the Department noted six (6) ASTs within the IWPA of Well #1. None of the ASTs has secondary containment. One AST is located behind the recreation department building, two (2) ASTs are associated with the fire station and three (3) ASTs are associated with the police station. Additionally, a backup generator, which has its own 100-gallon diesel tank, is located within the IWPA. If managed improperly, aboveground storage tanks can be a potential source of contamination due to leaks or spills of the chemicals they store.
   Recommendations:
- For existing aboveground storage tanks in the IWPA without secondary containment, no modification is required by the drinking water program for the tank if it is in compliance with all other state and local requirements. However, the drinking water program recommends 110% secondary containment for all aboveground storage tanks in wellhead protection areas.
- The Department recommends that you convert to propane or natural gas or provide secondary containment for all tanks within the IWPA. Upgrade to propane or natural gas for back-up power sources.
- 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 valve to prevent leaks. Make sure AST legs are on a firm base and are protected from vehicles.
- Work with the local fire Department to ensure compliance with local code requirements regarding ASTs.
- During refilling of AST, ensure that the operator of the oil transport tanker does not leave the vehicle area while the AST is being filled.

  <u>Recommendations implemented:</u> The two ASTs behind the fire station have been removed and replaced with natural gas. Additionally, according to the certified operator the other four (4) ASTs are scheduled to be replaced with natural gas by 2007.

4. **Floor Drains** - Floor drains that ultimately lead to the soil via a dry well or septic system are prohibited. The Department noted that the police station has one floor drain in the boiler room for the air conditioning drain line. Also, the fire station has 8 garage bays for fire equipment. Each

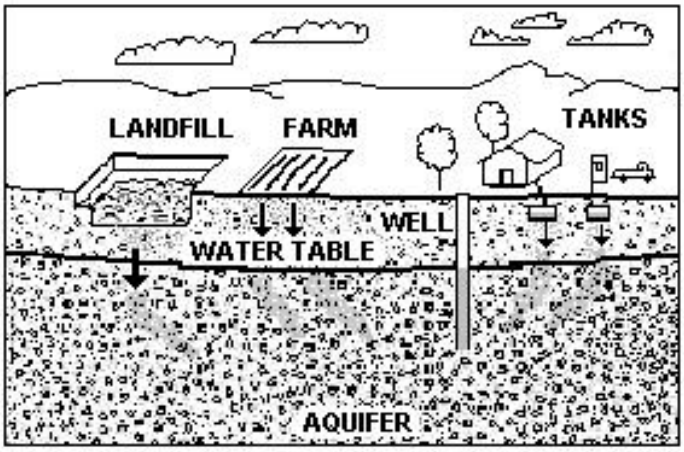

Figure 1: Example of how a well could become contaminated by different land uses and activities.

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 Use/Associated Contaminants Matrix

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

bay has its own floor drain. All nine (9) drains, which are located within the IWPA, flow into a tight tank.

Recommendations:

- V Please fill out the Department's UIC notification form that shall serve as a notice to the Department of elimination of the use of the unauthorized floor drains. If you have any questions regarding the form please contact the UIC Coordinator Kenneth Pelletier (617) 348-4014.
- V Please provide the Department with a copy of the plans for the vehicle washing treatment system and tight tank as well as any approval you received from state or local authorities.

Recommendation Implemented: The floor drains in the fire station and police station were tied to a tight tank. During the process, a very small amount of impacted soil was removed from the leaching area. The new fire station now has a vehicle washing water treatment system and the tight tank.

5. **Septic System** - The facility's septic system is located within the IWPA. The leaching field is located approximately 300 feet south of Well #1.

Recommendations:

- V Staff should be instructed on the proper disposal of spent household chemicals (include custodial staff, groundskeepers and certified operator).
- V Septic system components should be located, inspected, and maintained on a regular basis. Refer to the attachments for more information regarding septic systems.

6. **Athletic Fields and Facility Lawn Care** - The facility's lawn area and Little League fields are located within the IWPA. Over-application of pesticides and fertilizers on lawns is a potential source of contamination to the water supply.

Recommendation:

- V Use best management practices (BMPs) for applying, handling, and storage of pesticides and fertilizers. Information on environmentally sound lawn care practices is available from the Massachusetts Department of Food and Agriculture Pesticide Bureau's web site at http://www.massdfa.org.

7. **Hazardous Waste Generation and Storage (waste oil) -** Waste oil generated at the police station is stored in the police station garage in a 55 gal. drum.

Recommendation:

- V The Eastham Police Station is currently not registered as a generator of hazardous waste or waste oil. Review DEP's *A SUMMARY OF REQUIREMENTS FOR SMALL QUANTITY GENERATORS OF HAZARDOUS WASTE* to determine your status and regulatory requirements. Hazardous waste is a potential source of contamination if it is improperly handled or stored.

Recommendation Implemented: The Eastham Police Station has subsequently registered as a very small quantity generator of waste oil, and they contract with a licensed hauler to remove the hazardous waste off site.

Other Activities Noted During the Assessment

The facility's paved parking areas and Route 6 are located east of the Zone I for Well #1. As flowing storm water travels, it picks up debris and contaminants from streets, parking areas and lawns. Common potential contaminants include lawn chemicals, pet waste, leakage from dumpsters, household hazardous waste, and contaminants from vehicle leaks, maintenance, washing or accidents. Catch basins transport storm water from the roadway and adjacent properties to the ground. Have the catch basins inspected, maintained, and cleaned on a regular schedule. The Department recommends the public water supplier consider nonstructural techniques such as parking lot sweeping to reduce the amount of potential contaminants in storm water runoff. Additionally, the public water supplier may want to consider structural BMPs (e.g. storm water swales, installation of curbs along the paved areas, detention basin, etc.) as part of a comprehensive storm water management plan for the site. To learn more refer to the *Storm Water Management Handbook, Volumes 1 and 2* available at: http://www.state.ma.us/dep/brp/ww/wwpubs.htm.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the well's susceptibility to contamination. The Eastham Police Facility should review and adopt the key recommendations listed in this report.

Zone I:

- Keep non-water supply activities out of the Zone I.
- Prohibit public access to the well by locking facilities, gating roads, and posting signs.

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.
- Work with your community to ensure that storm water runoff is directed away from the well and is treated according to DEP guidance.

Facilities Management:

- Implement Best Management Practices (BMPs) for the use of fertilizer and pesticides on facility property.
- 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 Eastham to include the Eastham Police Facility 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.
- 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:

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.
- Your Septic System brochure
- Source Protection Sign Order Form