

NASHUA

00-02/WHP

Wellhead Protection Plan

Ayer, Massachusetts

July 2003

PREPARED BY:

**TATA & HOWARD, INC.
125 Turnpike Road
Westborough, Massachusetts 01581**

ON BEHALF OF:

**THE TOWN OF AYER
Water Department
Brook Street
Ayer, Massachusetts 01432**

PREPARED FOR:

**MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF RESOURCE PROTECTION**

AND

**U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION I**

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**MASSACHUSETTS EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
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Edward P. Kunce, Acting Commissioner**

**BUREAU OF RESOURCE PROTECTION
Cynthia Giles, Assistant Commissioner**

**DIVISION OF WATERSHED MANAGEMENT
Glenn Haas, Director**

This project has been financed partially with Federal Funds from the Environmental Protection Agency (EPA) to the Massachusetts Department of Environmental Protection (DEP) under a Wellhead Protection Grant.

The contents do not necessarily reflect the views and policies of EPA or DEP, nor does the mention of trade names or commercial products constitute endorsement or recommendation for use.

Final Report

Purpose of Project

The purpose of the project is to develop a Wellhead Protection Plan for the Town of Ayer, which will assist the Town in protecting their valuable drinking water resources. Work under this contract included updating the Town's existing Emergency Response Plan, the installation of wellhead protection signs at two well sites, replacement of the gates at the Grove Pond well site, as well as the preparation of the plan itself. The Wellhead Protection Plan report includes the development of a public educational program and public school curriculum, identification and mapping of potential sources of contamination, completion of an Environmental Audit and incorporation of all other work completed under this contract.

Summary of Tasks Completed

- Emergency Response Plan - The purpose of the emergency response plan is to protect the water supply resources in Ayer. The plan outlines the appropriate tasks to be taken by Town personnel during all levels of emergencies as defined by DEP. The emergency response plan includes a brief history of the Ayer water distribution system, water conservation tips, water use restrictions that may be implemented in the event of an emergency, important phone numbers and the copies of applicable DEP reporting forms.
- Purchase and Posting of Signs - The Town purchased and installed 20 wellhead protection signs along the Zone II area of the Spectacle Pond and Grove Pond Wells. The signs will alert the public when they are entering water supply recharge areas and serve as an educational tool.
- Fencing – Fencing around pump stations provides a physical barrier to protect intentional and unintentional damage to the water supply sources. This project included the installation of two swing gates with locks around the Grove Pond pump stations. The twelve-foot doublewide chain link gates are six feet high and furnished with three strands of barbed wire across the top for added security.
- Educational Outreach Program – An educational curriculum for the public schools was developed as part of this project. In addition, the Wellhead Protection Plan includes water supply district mapping that can be posted in accessible areas within Town for viewing and tips for the protection of drinking water. Other recommended outreach measures to be initiated in the future include holding an open house and the establishment of a water supply protection committee. Most importantly, the Wellhead Protection Plan itself will serve as an educational resource for the Town of Ayer.
- Land Use Survey – A land use survey of the area within the Zones II and III of the Grove Pond and Spectacle Pond wells was completed. The survey identified potential threats to the Town water supplies including residential activities, inappropriate activities within the Zone I, hazardous material storage sites, underground storage tanks and areas of impervious

surfaces. In addition, potential threats posed by the former Fort Devens Military Reservation were discussed. The inventory of potential threats are tabulated and displayed on mappings within the Wellhead Protection Plan. The threats were identified on the Town's Aquifer Protection Overlay District map using GIS mapping. In addition to printed maps, the threat information is provided in a digital format on diskettes included in the Wellhead Protection Plan.

- Environmental Audit – An audit of commercial and industrial facilities located within the Spectacle Pond and Grove Pond wells Zone II delineations was completed as part of this project. The audit assessed the type of chemical stored and/or used at each site. During the audit, information on Best Management Practices was provided to the industries and recommended actions were mailed in a follow-up letter. The completed field survey forms for each existing industry within the Aquifer Protection District, together with an inventory of chemicals used and stored at each site, are included in the Wellhead Protection Plan.

Effectiveness of Project

As a result of the Wellhead Protection Plan compiled as part of this project, it is apparent that the Grove Pond and Spectacle Pond Wells are susceptible to contamination from a number of identified land uses and activities that occur within the Wellhead Protection Areas. Water is not an unlimited resource and as such, it is imperative that the Town protect its existing (water supply) sources. The development of this Wellhead Protection Plan was a proactive measure taken by the Town in this regard. Specifically, the tasks completed as part of this project will assist the Town in protecting their valuable water resources now and into the future. These tasks included securing the Grove Pond public water supply source; installing signage within the wellhead protection areas; developing a public school curriculum; completing an environmental audit; and identifying and mapping potential sources of contamination. However, it is important to recognize that the full benefits of the Wellhead Protection Plan itself will not be realized unless the Town follows-up on these efforts.

The benefits associated with the proactive development and implementation of a Wellhead Protection Plan are many. Risks to human health from contaminated drinking water can be reduced, real estate values enhanced, existing local municipal bylaws supported and the likelihood of a clean supply of drinking water for future generations improved. For these reasons, it is in the Town of Ayer's interest to actively enforce the existing bylaws and Wellhead Protection measures in place and to pursue the completion of the recommendations presented herein.

Recommendations

Recommendations for improving the protection of the Town of Ayer's public water supply sources were provided as part of the Wellhead Protection Plan. The recommended actions and associated implementation schedule is provided on Table No. 1.

1. Eliminate Inappropriate Activities within the Zone I

A number of activities were identified within the Zone I of both the Grove Pond and Spectacle Pond wells that conflict with the operation of the public water supply. These activities should be eliminated to the extent possible. Specifically, we recommend the following:

- Monitor Zone I Activities – The Water Department should continue daily inspections of the Zone I drinking water supply areas and monitor non-water supply activities within the Zone I. Particular attention should be given to the implementation of Best Management Practices (BMPs) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and potential release of hazardous materials. In addition, the practice of stockpiling materials within the Zone I should cease.
- Obtain Memorandums of Understanding (MOU) and Rights of First Refusal Agreements at the Spectacle Pond Wells – The Town should obtain a MOU agreement with the landowner of a residential home located within the Zone I of the Spectacle Pond Well. In this agreement, the landowner may essentially pledge not to endanger the water supply source through their land uses and activities. The Town should also draft a Right of First Refusal for this property, which would grant the Town preference in purchasing the land if sold in the future.
- Obtain ownership of land occupied by the Massachusetts Air National Guard (MANG). The Town has discussed the possibility of obtaining ownership of the Zone I radius around each of the Grove Pond wells with the MANG; an Annual Town Meeting warrant authorizing the Town to commence with this action was approved in 2002. The Town should make it a top priority to secure this property. If the Town is unable to obtain ownership of the property, a Right of First Refusal or Conservation Restriction should be utilized.

2. Form a Wellhead Protection Committee

In accordance with the DEP Wellhead Protection Guidelines, one of the first steps in wellhead protection is the formation of a Wellhead Protection Committee (WPC). The primary task of this committee would be to assist the Water Department and Department of Public Works in the implementation of wellhead protection measures. If possible, the WPC should include members from other Town agencies and groups such as the Board of Selectmen/Board of Water Commissioners, Planning Board, Board of Health, Conservation Commission, Department of Public Works, representatives from other public water suppliers within the Town of Ayer, and members of local private groups such as People of Ayer Concerned about the Environment (PACE). Most importantly, the WPS should be comprised of members interested in actively protecting the Town's water resources.

3. Improve Municipal Communications

- **Interdepartmental Communication** - Although the Town has a number of municipal bylaws already in place that will assist in the protection of the public water supplies, improved interdepartmental communications are essential to the success of a Wellhead Protection Plan. Specifically, a codified approval process should be developed for use in coordinating the review of projects submitted to the Town's Planning Board and/or Zoning Board. Particular attention should be given to control new residential developments in the water supply protection areas. A Sample Water Supply Protection Checklist as published by the DEP – Drinking Water Program is provided in the Town's Wellhead Protection Plan. This checklist was developed to provide local officials with a methodology for reviewing and commenting on projects prior to permitting them in water supply areas.

The various Town agencies should coordinate the implementation of additional municipal bylaws necessary for improved Wellhead Protection. Additional municipal controls may include the implementation of moratoriums, subdivision phasing, and “down zoning”. In addition, the members of the Community Preservation Act Committee should be involved to assist in the pursuit of the acquisition of land encompassing the wellhead. In addition to the Zone I areas, the areas recommended for acquisition include the land located in the Zone II, particularly that land closest to the Zone I, land subject to high-risk development, and land needed for potential future well sites.

- **Intermunicipal Communication** – The Zone IIs for both the Spectacle Pond Wells and the Grove Pond Wells extend beyond the Town of Ayer boundaries into adjacent communities. In addition, several wells owned and operated by other public and private entities are located within Ayer. The Town should work with the neighboring communities of Littleton and Devens to include the Ayer Zone II delineations in their wellhead protection controls and offer to do the same for neighboring communities with Zone IIs which extend into Ayer. In addition, coordinated efforts should be made to protect the drinking water supplies owned and operated by Epic, the Littleton Lyne Apartments and Devens within the Town of Ayer.

4. Public Outreach and Education Program

The development of this Wellhead Protection Plan provides the first step in the implementation of a public outreach and education program. Specifically, the posting of signage within the wellhead protection areas will alert members of the community as to the location of these critical resources. In addition, the environmental audit initiated an education program for members of the commercial and industrial community with businesses located within the Zone IIs. Additional measures to improve public outreach and education are as follows:

- **Circulate Wellhead Protection Plan and Mapping** - Copies of the Wellhead Protection Plan should be provided to each of the Town Boards and Departments. In addition, the Public Water Supply and Recharge Area Map located in Appendix A should be posted in the Town Hall, library, and schools, as well as other accessible locations affording public viewing.

- Public School Curriculum - The Educational Program for Public Schools has been prepared for immediate implementation by Water Department personnel. Materials that were outlined in Section 4 as part of the Educational Program for the Public Schools are available electronically to the Water Department to produce additional copies as required.
- Distribute Targeted Mailings – One of the first steps in public education is to establish a knowledge base and promote awareness. Protection tips as provided in Appendix D should be distributed to appropriate residents and businesses located within the wellhead protection areas. In addition, those residents located in close proximity to the Spectacle Pond wells who utilize septic systems should be sent a notification letter indicating their location in relation to the Town's water supply and steps they can take to assist in its protection. A sample notification letter and the addresses of the residents of particular concern are provided in Appendix H.

5. Implement BMPs

Best Management Practices are an effective method for addressing existing and potential threats in water supply recharge areas; including high-risk land uses, non-point sources of pollution and development impacts. BMPs employ the most appropriate technologies to prevent or mitigate a contaminant release to the environment. Double-walled tanks, integrated pest management, household hazardous waste collection days, stenciling storm drains and stormwater control devices are just some examples of BMPs. Specific recommended actions for identified potential sources of contamination within Ayer were incorporated into the Wellhead Protection Plan. The implementation of two BMPs in particular is a recommended priority.

- Establish a Household Hazardous Waste Collection Day – An annual or semi-annual program for the collection of household hazardous wastes should be implemented at the Ayer Transfer Station or other designated site. The program would provide a location for the appropriate disposal of batteries, used motor oil, paint supplies and other household hazardous wastes, thereby reducing the chances that these products would be disposed of in a manner that could contaminate the aquifer.
- Incorporate Stormwater Management Policy requirements into the Planning Board Regulations. Although the Planning Board subdivision control regulations include minimum performance standards for the design of drainage systems, we recommend that the regulations specifically require that the drainage system components be designed to meet the requirements of the Stormwater Management Policy. At a minimum, the regulations should require the use of deep sump catch basins, infiltration devices and associated detention basins in order to maintain the water quality, recharge capabilities and discharge rates at each site.

6. Implement an Inspection and Monitoring Program

The environmental audit conducted by representatives of Tata & Howard and Water Department personnel should be continued on an annual basis by the Water Department and coordinated with the Board of Health and Building Inspector. The inspection program will assist in preventing hazardous substances from potentially entering the Town's water supplies, while providing a measure of enforcement of the Town's hazardous materials bylaw and floor drain regulations. Goals of the program should be to prioritize the local inspections, educate and provide information regarding BMPs to business owners, monitor the progress of any ongoing remedial actions conducted for known DEP disposal sites, encourage the removal of underground storage tanks and connections to the municipal sewer system whenever possible, and advise as to the implementation of additional protection controls as needed. As the program continues it is anticipated that a partnership with local businesses may be formed which will help to ensure the proper storage, handling and disposal of hazardous materials.

A groundwater monitoring plan should be established for proposed projects or activities which pose a potential threat to the public water supplies. The plan should involve the installation of monitoring wells positioned in strategic locations to detect contaminants before they impact the Town's water supplies. Such a groundwater monitoring plan has already been proposed for the Guilford Transportation project proposed within the Zone II delineation of the Spectacle Pond wells.

7. Emergency Response Procedures

It is important that the Water Department and Department of Public Works personnel become familiar with the Emergency Response Plan and procedures included as part of this project. The emergency response plan outlines a plan for providing adequate water in the event of temporary shortages and also outlines steps to be taken in the event of an emergency (i.e., assessing the emergency, and following communication protocols). The Town should augment the plan by developing a joint emergency response plan with the Fire Department, Board of Health and local and state emergency officials. If possible, emergency response drills should be coordinated on an annual basis and a training program initiated. At a minimum, the Wellhead Protection Plan, Emergency Response Plan and associated mapping should be updated as appropriate and distributed to the Fire Department and Board of Health. All parties should be aware of the stormwater drainage system within the Zone II areas and cooperate in the event of a spill or accident. In addition, all Town agencies should provide input to the Water Department for updates to the emergency and contingency plans, as necessary.

Table No. 1
Recommended Actions and Schedule
Wellhead Protection Plan
Ayer, Massachusetts

Recommended Action	Implementation Date
Eliminate Inappropriate Activities in Zone I <ul style="list-style-type: none"> • Monitor Zone I activities and to the extent possible, remove all non-water supply activities within each Zone I. 	Ongoing
<ul style="list-style-type: none"> • Establish a Memorandum of Understanding Agreement with the property owner within the Spectacle Pond Zone I. 	Fall 2004
<ul style="list-style-type: none"> • Obtain ownership of the Grove Pond Zone I from the Massachusetts Air National Guard. 	Fall 2004
Form a Wellhead Protection Committee	Spring 2004
Improve Municipal Communications <ul style="list-style-type: none"> • Utilize Water Supply Protection Checklist for the Coordination of Local Project Reviews 	Spring 2004
<ul style="list-style-type: none"> • Work with the Town of Littleton and the Devens Commerce Center to include the Ayer Zone II delineations in their wellhead protection controls. 	Fall 2003
Improve Public Outreach and Education	
<ul style="list-style-type: none"> • Circulate Wellhead Protection Plan and mapping. 	Fall 2003
<ul style="list-style-type: none"> • Commence public school education program. 	Spring 2004
<ul style="list-style-type: none"> • Distribute targeted mailings to residential, commercial and industrial users within the Zone II area. 	Spring 2004
Implement Best Management Practices	
<ul style="list-style-type: none"> • Incorporate compliance with the Stormwater Management Policy into the Planning Board regulations. 	Fall 2004
<ul style="list-style-type: none"> • Establish a household hazardous waste collection day. 	Spring 2004
Implement Inspection and Monitoring Program	
<ul style="list-style-type: none"> • Continue to conduct inspections of commercial and industrial activities within the Zone II. 	Annually
<ul style="list-style-type: none"> • Establish groundwater monitoring program 	As Appropriate
Emergency Response Procedures	
<ul style="list-style-type: none"> • Educate Town agencies on appropriate emergency response procedures. 	Fall 2004