Massachusetts Department of Environmental Protection
Source Water Assessment and Protection (SWAP) Report
for

Huntington Water Department

What is SWAP?

The Source Water Assessment 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.

Susceptibility and Water Quality

Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge area.

A source's susceptibility to contamination does *not* imply poor water quality.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, disinfecting, filtering, or treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Actual water quality is best reflected by the results of regular water tests. To learn more about your water quality, refer to your water supplier's annual Consumer Confidence Reports.

Table 1: Public Water System Information

PWS Name	Huntington Water Department
PWS Address	Route 20, P.O. Box 301
City/Town	Huntington
PWS ID Number	1143000
Local Contact	Mr. Bernard St. Martin
Phone Number	413-667-8861

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 storm runoff, 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.

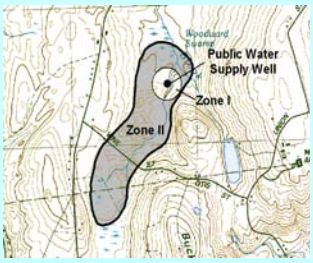
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes the following sections:

1. Description of the Water System
2. Land Uses within Protection Areas
3. Source Water Protection Conclusions and Recommendations
4. Appendices

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 a Zone II protection area.



Glossary

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 (i.e. clay) that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. This area should be owned or controlled by the water supplier and limited to water supply activities.

Zone II: The primary recharge area for the aquifer. This area is defined by hydrogeologic studies that must be approved by DEP. Refer to the attached map to determine the land within your Zone II.

Section 1: Description of the Water System

System Susceptibility; High

MA GIS Zone II ID: # 464 ***Susceptibility:*** High

Well Names	*Source IDs*
Well #1	1143000-01G
Well #2	1143000-02G

The Town of Huntington is primarily an agricultural and rural residential community in Western Massachusetts. The Water Department owns and maintains two groundwater supply wells and a reservoir. The reservoir is maintained as an Emergency source only and is not assessed in this report. There are two wells serving the Water Department of Huntington (1143000-01G and 1143000-02G). The source was initially developed in 1930 as a tubular series of six shallow, 2½-inch diameter wells, which were replaced in 1978 with two, 8-inch diameter, gravel developed wells, 50 feet apart and approximately 43-feet and 40-feet deep, respectively. The two wells have a combined, approved withdrawal rate of 300 gpm. The wells are located within the shallow bedrock valley of the West Branch Westfield River, that was filled with glacial and later alluvial sand and gravel. There is no evidence of a confining (protective) clay layer in the vicinity of the well. Wells located in an unconfined aquifer are considered to have a high vulnerability to potential contamination due to the absence of hydrogeologic barriers (i.e. clay) that can prevent contaminant migration into the aquifer from the surface. Each of the wells has a Zone I protective radius of 400 feet. The Zone II recharge area for the wells was delineated as part of the SWAP program utilizing empirical data developed during an extended duration pumping test, analytical modeling and hydrogeologic mapping. The wells are located immediately southeast of the Chester town line and the Zone II is almost entirely in the town of Chester. Please refer to the attached map to view the boundaries of the Zone I and Zone II.

Huntington adds sodium carbonate for pH adjustment and polyphosphate to the water for corrosion control. For current information on monitoring results and treatment, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report.

Section 2: Land Uses in the Protection Areas

The land uses in the Zone II area of Huntington's wells consist primarily of residential and agricultural uses (refer to attached map for details). Land uses and activities that have been identified as issues of concern are listed in Table 2.

Key Land Uses and Protection Issues include:

1. Nonconforming Zone I
2. Residential land uses
3. Transportation corridors
4. Agricultural activities
5. Hazardous waste generator
6. Right of Way: Electric and Railroad

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

1. Non-conforming Zone I – The Zone I for each well is a 400-foot radius around the wellhead. Massachusetts drinking water regulation (310 CMR 22.00 Drinking Water) requires 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. However, many public water supplies were developed prior to the Department's regulations and contain non water supply activities such as homes and public roads. The Water Department does not own the entire Zone I radius; there are activities such as a railroad track and roads within the Zone I.

Zone I Recommendations:

- ✓ To the extent possible, remove all non-water supply activities from the Zone Is to comply with DEP's Zone I requirements and continue to monitor those that cannot be removed.
- ✓ Continue current use of BMPs for the storage, use, and disposal of hazardous materials such as water supply chemicals and maintenance chemicals.
- ✓ Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Keep any new non-water supply activities out of the Zone I.
- ✓ Investigate and enter into an agreement of right-of-first refusal for the potential future purchase of the Zone I land or a conservation restriction to control any future activities within the Zone I land as feasible.

2. Residential Land Uses – Approximately 6% of the Zone II consists of residential areas. Huntington does not have a public sewer; therefore, all residences are assumed to use septic systems. If managed improperly, activities associated with residential areas can contribute to drinking water contamination. Common potential sources of contamination include:

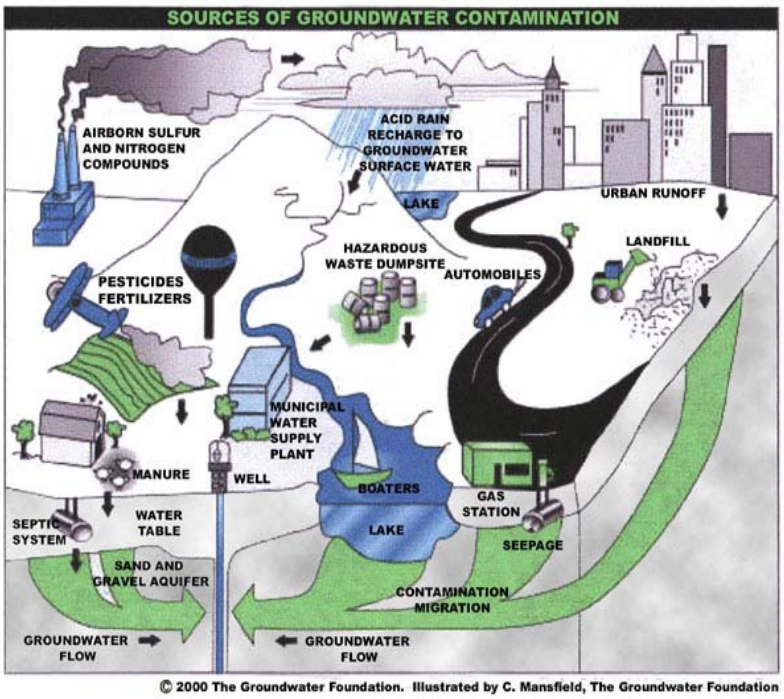
- **Septic Systems** – Improper disposal of household hazardous chemicals to septic systems is a potential source of contamination to the groundwater because septic systems lead to the ground. If septic systems fail or are not properly maintained they can be a potential source of microbial contamination.
- **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

Benefits of Source Protection

Source Protection helps protect public health and is also good for fiscal fitness:

- Protects drinking water quality at the source
- Reduces monitoring costs through the DEP Waiver Program
- Treatment can be reduced or avoided entirely, saving treatment costs
- Prevents costly contamination clean-up
- Preventing contamination saves costs on water purchases, and expensive new source development

Contact your regional DEP office for more information on Source Protection and the Waiver Program.



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 Appendix A 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.

3. Transportation Corridors - Local roads are common throughout the Zone II. Roadway construction, maintenance, and typical highway use can all be potential sources of contamination. Accidents can lead to spills of gasoline and other potentially dangerous transported chemicals. Roadways are frequent sites for illegal dumping of hazardous or other potentially harmful wastes. De-icing salt, automotive chemicals and other debris on roads are picked up by stormwater and wash into catch basins.

Transportation Corridor Recommendations:

- ✓ Identify stormwater drains and the drainage system along transportation corridors. Wherever possible, ensure that drains discharge stormwater outside of the Zone II.
- ✓ Storm Drain Stenciling Program - Work with local watershed groups to institute a Storm Drain Stenciling Program. For more information on how to develop a storm drain stenciling program go to http://www.earthwater-stencils.com
- ✓ Work with the Town and State to have catch basins inspected, maintained, and cleaned on a regular schedule. Street sweeping reduces the amount of potential contaminants in runoff. For information on DEP's Nonpoint Competitive Grants Program Upcoming Funding Opportunity refer to: http://www.state.ma.us/dep/brp/mf/mfpubs.htm#wpa.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained.
- ✓ If storm drainage maps are available, review the maps with emergency response teams. If maps aren't yet available, work with town officials to investigate mapping options such as the upcoming Phase II Stormwater Rule requiring some communities to complete stormwater mapping. For additional information, refer to the Stormwater Management Information at http://www.state.ma.us/dep/brp/ww/wwpubs.htm#storm
- ✓ Notify town officials of potential USDA funding for mitigation and prevention of runoff pollution through the Environmental Quality Incentives Program (EQIP). Review the fact sheet available on line and call the local office (Amherst 413-253-4350) of the

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What are "BMPs?"

Best Management Practices (BMPs) are measures that are used to protect and improve surface water and groundwater quality. BMPs can be structural, such as oil & grease trap catch basins, nonstructural, such as hazardous waste collection days or managerial, such as employee training on proper disposal procedures.

For More Information

Contact Catherine Skiba in DEP's Springfield Office at (413) 755-2119 for more information and assistance on improving current protection measures.

Copies of this report have been provided to the public water supplier, board of health, and the town.

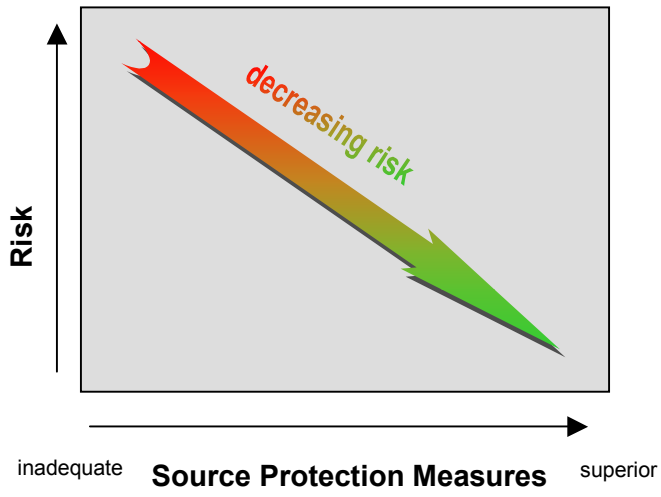

Figure 2: Risk of contamination decreases as source protection increases. This is true for public water systems of any susceptibility ranking, whether High, Moderate, or Low.

Potential Source of Contamination vs. Actual Contamination

The activities listed in Table 2 are those that typically use, produce, or store contaminants of concern, which, if managed improperly, are potential sources of contamination (PSC).

It is important to understand that a release may never occur from the potential source of contamination provided facilities are using best management practices (BMPs). If BMPs are in place, the actual risk may be lower than the threat ranking identified in Table 2. Many potential sources of contamination are regulated at the federal, state and/or local levels, to further reduce the risk.

Table 2: Land Use in the Protection Areas (Zones I and II)

For more information, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Zone II	Threat*	Potential Source of Contamination
Agriculture				
Fertilizer Storage or Use	Several	Yes	M	Fertilizers: leaks, spills, improper handling, or over-application
Farm animals (hobby)	1	Yes	M	Manure (microbial contaminants): improper handling
Manure Storage or Spreading	Several	Yes	M	Manure (microbial contaminants): improper handling
Crops	1	Yes	M	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling, or over-application
Pesticide Storage or Use	Several	Yes	H	Pesticides: leaks, spills, improper handling, or over-application
Miscellaneous				
Railroad Tracks	1	Yes	H	Herbicides: over-application or improper handling; fuel storage, transported chemicals, and maintenance chemicals: leaks or spills
Hazardous Materials Storage (registered—Zone III and unregistered Zone II)	2	Yes	H	Hazardous materials: spills, leaks, or improper handling or storage
Illegal junkyards (Just outside of Zone II)	1	-	-	Debris containing hazardous materials or wastes
Residential				
Fuel Oil Storage (at residences)	Numerous	Yes	M	Fuel oil: spills, leaks, or improper handling
Lawn Care / Garden-ing	Numerous	Yes	M	Pesticides: over-application or improper storage and dis-posal
Septic Systems	Numerous	Yes	M	Hazardous chemicals: microbial contaminants, and im-proper disposal

Activities	Quantity	Zone II	Threat*	Potential Source of Contamination
Miscellaneous				
Transmission Line Rights-of-Way	2	Yes	L	Corridor maintenance pesticides: over-application or improper handling; construction
Transportation Corridors	Several	Yes	M	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling

Notes:
1. When specific potential contaminants are not known, typical potential contaminants or activities for that type of land use are listed. Facilities within the watershed may not contain all of these potential contaminant sources, may contain other potential contaminant sources, or may use Best Management Practices to prevent contaminants from reaching drinking water supplies.
2. For more information on regulated facilities, refer to Appendix B: Regulated Facilities within the Water Supply Protection Area information about these potential sources of contamination.
3. For information about Oil or Hazardous Materials Sites in your protection areas, refer to Appendix C: Tier Classified Oil and/or Hazardous Material Sites.

*** THREAT RANKING** - The rankings (high, moderate or low) represent the relative threat of each land use compared to other PSCs. The ranking of a particular PSC is based on a number of factors, including: the type and quantity of chemicals typically used or generated by the PSC; the characteristics of the contaminants (such as toxicity, environmental fate and transport); and the behavior and mobility of the pollutants in soils and groundwater.

NRCS for assistance http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPFct.pdf.

4. Agricultural Activities – Croplands and pasture lands make up 6% of the land uses in the Zone II. There are corn and hayfields in the Zone II, as well as blueberry orchards. Pesticides and fertilizers have the potential to contaminate a drinking water source if improperly stored, applied, or disposed. If not contained or applied properly, animal waste from barnyards, manure pits and field application are potential sources of contamination to ground and surface water. There are several agricultural uses in the Zone II. If they are commercial facilities Department of Food and Agriculture and the US Natural Resources Conservation Service can provide technical assistance and potential funding to assist them. If they are hobby farmers, provide them with information available from DEP on BMPs.

Agricultural Activities Recommendation:

✓ Work with commercial 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.

✓ Notify hobby farmers that they are within the Zone II and provide information on BMPs or refer them to the DEP, Farm Bureau or Conservation District for assistance.

✓ The USDA has various funding sources for government, non-government organizations and agricultural facilities through programs such as those listed on the USDA web site http://search.sc.egov.usda.gov/. Additional information is available on the web site www.ruraldev.usda.gov or call Paul D. Geoffroy, Rural Development Manager at the local office in Hadley at 413-585-1000 ex.4.

5. Hazardous Waste Generator – Due to their daily operations at some facilities, very small quantities of hazardous waste are generated. Banish Lumber (which is outside of the Zone II but within the Zone III) has appropriate permits, and they contract with a licensed hauler to remove the hazardous waste. Hazardous waste is a potential source of contamination if it is improperly handled or stored. There is however a small business within the Zone II that may be a very small quantity generator of regulated hazardous materials but is not registered.

Hazardous Waste Generator Recommendation:

✓ Inform businesses of their proximity to the Zone II and encourage businesses to maintain their current good practices to handle hazardous waste in compliance with regulations. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix A and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP's for common business issues.

- ✓ There is at least one small business located in the Zone II that appears to use and store hazardous materials such as petroleum that is currently not registered as a generator of hazardous waste or waste oil. Request that the Chester Board of Health review the enclosed document "A SUMMARY OF REQUIREMENTS FOR SMALL QUANTITY GENERATORS OF HAZARDOUS WASTE" and visit the facility to help them determine their status and regulatory requirements. Enclosed is a registration form for you to supply to the Board of Health.

6. Right-of-Ways – The railroad and an electricity right of way run through the Zone II. Rail corridors that serve passenger and/or freight trains are a potential source of contaminants due to chemicals released during normal use, track maintenance, and accidents. Normal maintenance of any right-of-way can introduce contaminants to a water supply through herbicide application for vegetation control. The over-application or improper handling of herbicides on right-of-ways is a potential source of contamination. Leaks or spills of transported chemicals or train/track maintenance chemicals are also potential sources of contamination to the water supply.

Railroad Right of Way Recommendations:

- ✓ Continue your current practice of reviewing the railroad right-of-way Yearly Operating Plan to ensure Best Management Practices are implemented with regard to vegetation control in the Zone II, and that the utility has accurate information regarding the locations of the wells and the protection zones. Review the maps the utilities use.
- ✓ Notify Western Massachusetts Electric Company of the right-of-way within the Zone II of your source. Supply them with accurate maps and request notification from the utility should they resume use of the right-of-way. Review the right-of-way Yearly Operating Plan from the electric company, and request their continued use of Best Management Practices with regard to vegetation control on the right-of-way in the Zone II.
- ✓ Work with your local fire department to review emergency response plans. Updates to this plan should include the railroad right-of-ways including coordination with the owner/operator of the track and trains using the right-of-way. Request emergency response teams to coordinate Emergency Response Drills and practice containment of potential contaminants from train accidents within the Zone II, which should attempt to include representatives from the owner/operator of the trains utilizing the right-of-way.

Top 5 Reasons to Develop a Local Wellhead Protection Plan

❶ Reduces Risk to Human Health

❷ Cost Effective! Reduces or Eliminates Costs Associated With:

- Increased groundwater monitoring and treatment
- Water supply clean up and remediation
- Replacing a water supply
- Purchasing water

❸ Supports municipal bylaws, making them less likely to be challenged

❹ Ensures clean drinking water supplies for future generations

❺ Enhances real estate values – clean drinking water is a local amenity. A community known for its great drinking water in a place people want to live and businesses want to locate.

Other land uses and activities within the Zone II that are potential sources of contamination are included in Table 2. 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.

Section 3: Source Water Protection Conclusions and Recommendations

Current Land Uses and Source Protection:

As with many water supply protection areas, the system Zone IIs contain potential sources of contamination. However, source protection measures reduce

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the risk of actual contamination, as illustrated in Figure 2. The Huntington Water Department is commended for their proactive stance on water supply protection demonstrated by the following:

- Detailed knowledge of activities in the protection areas and active monitoring
- Applying for Wellhead Protection Grants
- Constructing a building to contain hazardous water supply chemicals
- Preparing a Wellhead Protection Plan
- Fencing the wellheads

Source Protection Recommendations:
To better protect the sources for the future:

- ✓ Inspect the Zone I regularly, and when feasible, remove any non-water supply activities.
- ✓ Continue educating residents on ways they can help you to protect drinking water sources.
- ✓ Work with emergency response teams to ensure that they are aware of the stormwater drainage in your Zone II and to cooperate on responding to spills or accidents.
- ✓ Partner with abutting communities and local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Work with commercial farmers in your protection areas to make them aware of your water supply and to encourage the use of a NRCS farm plan to protect water supplies.
- ✓ Supply BMPs to land owners that are hobby farmers to control, fertilizer, pesticide and manure management.
- ✓ Make regular updates to the Wellhead Protection Plan.
- ✓ Continue efforts of working with Chester's Town Boards

Conclusions:
These recommendations are only part of your ongoing local drinking water source protection. Additional source protection recommendations are listed in Table 3, the Key Issues above and Appendix A.

DEP staff, informational documents, and resources are available to help you build on this SWAP report as you continue to improve drinking water protection in your community. As you are aware, the Department's Wellhead Protection Grant Program and Source Protection Grant Program provide funds to assist public water suppliers in addressing water supply source protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the Grant Program. Please note: each spring DEP posts a new Request for Response for the grant program (RFR).

Other Funding Sources:
Other grants and loans are available through the Drinking Water State Revolving Loan Fund, the Clean Water State Revolving Fund, and other sources. For more information on grants and loans, visit the Bureau of Resource Protection's Municipal Services web site at: http://mass.gov/dep/brp/mf/mfpubs.htm. The USDA also has various funding sources for government, non-government organizations and agricultural facilities through programs such as those listed on the USDA web site http://search.sc.egov.usda.gov/nrcs.asp?qu=eqip&ct=NRCS. One program in particular, the Environmental Quality Incentives Program (EQIP) may be utilized in a variety of projects from DPW stormwater management to farm nutrient management designed to protect surface and groundwater. Review the fact sheet available on line and call the local office (Amherst 413-253-4350) of the NRCS for assistance http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/EQIPFct.pdf.

What is a Zone III?

A Zone III (the secondary recharge area) is the land beyond the Zone II from which surface and ground water drain to the Zone II and is often coincident with a watershed boundary.

The Zone III is defined as a secondary recharge area for one or both of the following reasons:

1. The low permeability of underground water bearing materials in this area significantly reduces the rate of groundwater and potential contaminant flow into the Zone II.
2. The groundwater in this area discharges to a surface water feature such as a river, rather than discharging directly into the aquifer.

The land uses within the Zone III are assessed only for sources that are shown to be groundwater under the direct influence of surface water.

Additional Documents:

To help with source protection efforts, more information is available by request or online at mass.gov/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

The assessment and protection recommendations in this SWAP report are provided as a tool to encourage community discussion, support ongoing source protection efforts, and help set local drinking water protection priorities. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures. The water supplier should supplement this SWAP report with local information on potential sources of contamination and land uses. Local information should be maintained and updated periodically to reflect land use changes in the Zone II. Use this information to set priorities, target inspections, focus education efforts, and to develop a long-term drinking water source protection plan.

Section 4: Appendices

A. Protection Recommendations
B. Registered Facilities within the Protection Area
C. Additional Documents on Source Protection

Table 3: Current Protection and Recommendations

Protection Measures	Status	Recommendations
Zone I		
Does the Public Water Supplier (PWS) own or control the entire Zone I?	**NO**	When possible, purchase Zone I lands, pursue conservation restrictions, or otherwise work to keep non-water supply activities out of the Zone Is.
Is the Zone I posted with "Public Drinking Water Supply" Signs?	**YES**	Additional economical signs are available from the Northeast Rural Water Association (802) 660-4988.
Is Zone I regularly inspected?	**YES**	Continue daily inspections of drinking water protection areas.
Are water supply-related activities the only activities within the Zone I?	**NO**	Continue monitoring non-water supply activities in Zone Is.
Municipal Controls (Zoning By-laws/Ordinances, Health Regulations, and General By-laws/Ordinances)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	**YES**	Huntington does have controls that meets DEP's requirements for wellhead protection.
Do neighboring communities protect the Zone II areas extending into their communities?	**NO**	Continue working with Chester to prepare and bring to Town Meeting wellhead protection controls through Zoning or Health regulations and include the Huntington Zone II.
Planning		
Does the PWS have a Wellhead Protection Plan?	**YES**	Implement tasks identified in the wellhead protection plan and update the plan as required.
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	**YES**	Develop a joint emergency response plan with fire department, Board of Health, DPW, and local and state emergency officials. Coordinate emergency response drills with local teams in Chester.
Does the municipality have a wellhead protection committee?	**YES**	Continue with the committee to implement to plan; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	**NO**	For more guidance see "Hazardous Materials Management: A Community's Guide" at www.state.ma.us/dep/brp/dws/files/hazmat.doc
Does the PWS provide wellhead protection education?	**YES**	Aim efforts at residential, commercial, and municipal uses within the Zone II.