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

Barnstable Water Company

What is SWAP?

The Source Water Assessment and 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	Barnstable Water Company
PWS Address	47 Old Yarmouth Road
City/Town	Barnstable, Massachusetts
PWS ID Number	4020004
Local Contact	David Condrey
Phone Number	(508) 775-0063

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.

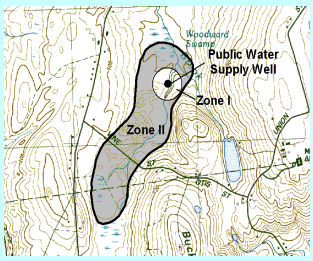
Refer to Table 3 for Recommendations to address potential sources of contamination. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

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

Zone II #: 309 ***Susceptibility:*** High

Well Names	***Source IDs***
Mary Dunn Well #4	4020004-09G

Zone II #: 310 ***Susceptibility:*** High

Well Names	***Source IDs***
Mary Dunn Well #3	4020004-08G

Zone II #: 312 ***Susceptibility:*** High

Well Names	***Source IDs***
Mary Dunn Well #1	4020004-04G

Zone II #: 313 ***Susceptibility:*** High

Well Names	***Source IDs***
Mary Dunn Well #2	4020004-05G

Zone II #: 314 ***Susceptibility:*** High

Well Names	***Source IDs***
Airport Well #1	4020004-10G

Zone II #: 315 ***Susceptibility:*** High

Well Names	***Source IDs***
Maher Well #2	4020004-02G
Maher Well #1	4020004-07G
Maher Well #3	4020004-11G

Zone II #: 316 ***Susceptibility:*** High

Well Names	***Source IDs***
Straightway Well	4020004-01G
Hyannisport	4020004-03G
Simmons Pond	4020004-06G
Straightway Well	4020004-12G

The twelve (12) wells for the Barnstable Water Company are located in seven (7) Zone II. Zone II #315 extends in to the Town of Yarmouth, while the other Zone II are all within the Town of Barnstable. Each well has a Zone I of 400 feet. The wells are located in an aquifer with a high vulnerability to contamination due to the absence of hydrogeologic barriers (i.e. clay) that can

prevent contaminant migration. Please refer to the attached map to view the boundaries of the Zone II.

Water from the wells is pH adjusted for corrosion control. Water from the Maher Wells, (wells 02G, 07G, and 11G) is also disinfected and treated for organics removal. 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. Drinking water monitoring reporting data are also available on the web at http://www.epa.gov/safewater/ccr1.html.

Section 2: Land Uses in the Protection Areas

The Zone II for Barnstable Water Company are a mixture of residential, commercial, light industrial, and forested land uses (refer to attached map for details). Land uses and activities that are potential sources of contamination are listed in Table 2, with further detail provided in the Table of Regulated Facilities and Table of Underground Storage Tanks in Appendix A.

Key Land Uses and Protection Issues include:

1. Inappropriate activities in Zone I
2. Residential land uses
3. Transportation corridors
4. Hazardous materials storage and use
5. Oil or hazardous material contamination sites
6. Comprehensive wellhead protection planning

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. Inappropriate Activities in Zone Is – The Zone I for each of the wells is a 400 foot radius around the wellhead. Massachusetts drinking water regulations (310 CMR 22.00 Drinking Water) requires public water suppliers to own the Zone I, or control the Zone I through a conservation restriction. The twelve (12) Zone Is for the wells are owned or controlled by the public water system. 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 following non water supply activities occur in the Zone Is of the system wells:

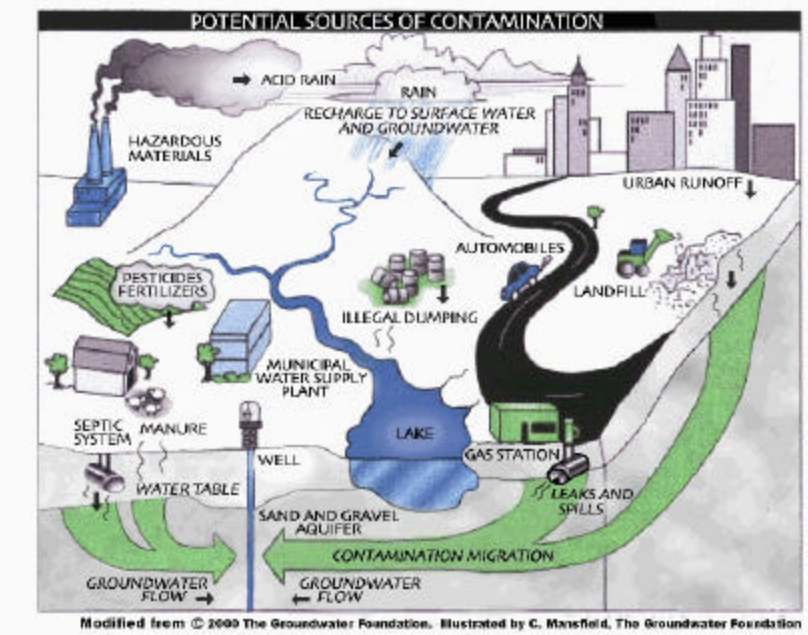
- Wells 03G, 04G, 08G and 09G have local roads within the Zone I.
- Wells 02G, 04G and 07G have unauthorized access within the Zone I.
- Wells 04G, 08G, 09G, and have a power line right-of-way within the Zone I.

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.



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.
- ✓ Use 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. Ensure that the power line right-of-way maintenance within the Zone I
- ✓ Keep any new non water supply activities out of the Zone I.

2. Residential Land Uses – Portions of the Zone II consist of residential areas. 60 - 70% of the areas have public sewers while the remainder 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 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 C 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. Visit DEP's web site for additional information and assistance at http://www.state.ma.us/dep/brp/wm/nonpoint.htm.

3. Transportation Corridors - Routes 132 and 28 run through the Zone II and 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

(Continued on page 8)

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 Isabel Collins in DEP's Lakeville Office at (508) 946-2726 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.

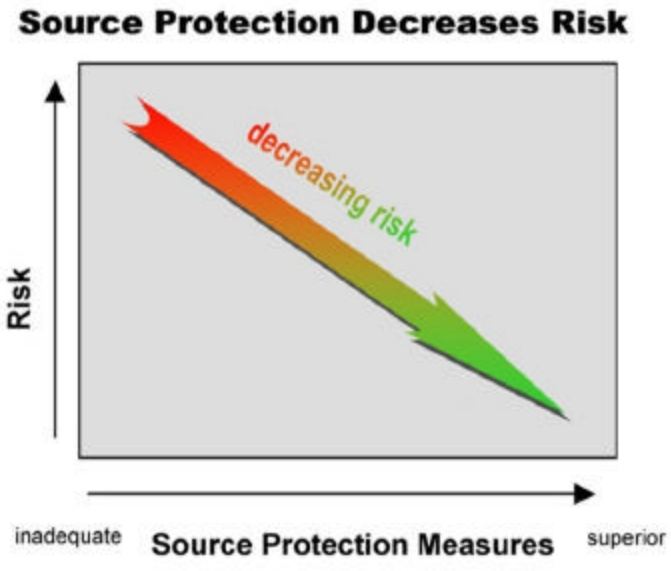


Figure 2: Risk of contamination decreases as source protection increases. This is true for public water systems of any susceptibility ranking, whether High, Moderate, or Low.

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 A: Regulated Facilities within the Water Supply Protection Area

Activities	Quantity	Threat*	Zone II#	Potential Source of Contamination
Agricultural				
Fertilizer Storage or Use	5	M	#310, #313, #314, #315, #316	Fertilizers: leaks, spills, improper handling, or over-application
Landscaping	1	M	#316	Fertilizers and pesticides: leaks, spills, improper handling, or over-application
Nurseries	1	M	#316	Fertilizers, pesticides, and other chemicals: leaks, spills, improper handling, or over-application
Pesticide Storage or Use	5	H	#310, #313, #314, #315, #316	Pesticides: leaks, spills, improper handling, or over-application
Commercial				
Airports	1	H	#310, #312, #313,#314, #315	Fuels, de-icers, salt, and other hazardous chemicals: spills, leaks, or improper handling
Car/Truck/Bus Washes	4	L	#313, #315	Vehicle wash water, soaps, oils, greases, metals, and salts: improper management
Body Shops	6	H	#309, #310, #313, #315	Vehicle paints, solvents, and primer products: improper management
Gas Stations	12	H	#310, #315, #316	Automotive fluids and fuels: spills, leaks, or improper handling or storage
Service Stations/ Auto Repair Shops	10	H	#309, #310, #313, #315, #316	Automotive fluids and solvents: spills, leaks, or improper handling
Boat Yards/Builders	1	H	#316	Fuels, paints, and solvents: spills, leaks, or improper handling
Bus and Truck Terminals	1	H	#315	Fuels and maintenance chemicals: spills, leaks, or improper handling
Dry Cleaners	2	H	#315, #316	Solvents and wastes: spills, leaks, or improper handling
Funeral Homes	1	L	#316	Hazardous chemicals: spills, leaks, or improper handling

*See Table 2 notes on page 11.

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

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

Activities	Quantity	Threat*	Zone II#	Potential Source of Contamination
Commercial				
Furniture Stripping and Refinishing	1	H	#315	Hazardous chemicals: spills, leaks, or improper handling
Golf Courses	1	M	#316	Fertilizers or pesticides: over-application or improper handling
Junk Yards and Salvage Yards	1	H	#312, #313, #314	Automotive chemicals, wastes, and batteries: spills, leaks, or improper handling
Laundromats	3	L	#315, #316	Wash water: improper management
Medical Facilities	1	M	#310, #313	Biological, chemical, and radioactive wastes: spills, leaks, or improper handling or storage
Photo Processors	1	H	#316	Photographic chemicals: spills, leaks, or improper handling or storage
Printer And Blueprint Shops	1	M	#315	Printing inks and chemicals: spills, leaks, or improper handling or storage
Railroad Tracks And Yards	1	H	#314, #315	Herbicides: over-application or improper handling; fuel storage, transported chemicals, and maintenance chemicals: leaks or spills
Repair Shops (Engine, Appliances, Etc.)	10	H	#309, #312, #314, #315, #316	Engine fluids, lubricants, and solvents: spills, leaks, or improper handling or storage
Research Laboratories	1	M	#310, #313	Laboratory chemicals and wastes: spills, leaks, or improper handling or storage
Sand And Gravel Mining/Washing	1	M	#309, #310, #313	Heavy equipment, fuel storage, clandestine dumping: spills or leaks
Industrial				
Foundries Or Metal Fabricators	1	H	#315	Solvents and other chemicals: spills, leaks, or improper handling or storage
Industry/Industrial Parks	1	H	#310, #313	Industrial chemicals and metals: spills, leaks, or improper handling or storage
Machine/ Metalworking Shops	3	H	#310, #312, #313, #316	Solvents and metal tailings: spills, leaks, or improper handling
Residential				
Lawn Care / Gardening	100+	M	All	Pesticides: over-application or improper storage and disposal
Septic Systems / Cesspools	75+	M	#313, #315, #316	Hazardous chemicals: microbial contaminants, and improper disposal

*See Table 2 notes on page 11.

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

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

Activities	Quantity	Threat*	Zone II#	Potential Source of Contamination
Miscellaneous				
Aboveground Storage Tanks	4	M	#313, #315	Materials stored in tanks: spills, leaks, or improper handling
Aquatic Wildlife	10+	L	All	Microbial contaminants. Note: several ponds
Clandestine Dumping	10+	H	All	Debris containing hazardous materials or wastes
Fire Training Facilities	1	M	#310	Fuels and other chemicals: improper use or storage
Fishing/Boating	2	L	#312, #313, #316	Fuel and other chemical spills, microbial contaminants
Large Quantity Hazardous Waste Generators	2	H	#310, #313, #315	Hazardous materials and waste: spills, leaks, or improper handling or storage
Oil or Hazardous Material Sites	16	--	#310, #313, #314, #315, #316	Tier Classified Oil or Hazardous Materials Sites are not ranked due to their site-specific character. Individual sites are identified in Appendix B.
Schools, Colleges, and Universities	2	M	#316	Fuel oil, laboratory, art, photographic, machine shop, and other chemicals: spills, leaks, or improper handling or storage
Small quantity hazardous waste generators	2	M	#316	Hazardous materials and waste: spills, leaks, or improper handling or storage
Transmission Line Rights-of-Way	1	L	#309, #310, #313	Corridor maintenance pesticides: over-application or improper handling; construction
Transportation Corridors	2	M	All	Fuels and other hazardous materials: accidental leaks or spills; pesticides: over-application or improper handling
Underground Storage Tanks	23	H	#310, #313, #314, #315, #316	Stored materials: spills, leaks, or improper handling
Utility Substation Transformers	3	L	#313, #314	Chemicals and other materials including PCBs: spills, leaks, or improper handling
Very Small Quantity Hazardous Waste Generator	10+	L	#309, #310, #313, #315, #316	Hazardous materials and waste: spills, leaks, or improper handling or storage
Wastewater Treatment Plant/Collection Facility/	1	M	#312 - #316	Treatment chemicals or equipment maintenance materials: improper handling or storage; wastewater: improper
Water Treatment Sludge Lagoon	1	M	#312 - #316	Sludge and wastewater: improper management

*See Table 2 notes on page 11.

(Continued from page 4)

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 in to catchbasins.

Railroad tracks run through the water supply protection areas. Rail corridors serving passenger or freight trains are potential sources of contamination due to chemicals released during normal use, track maintenance, and accidents. Accidents can release spills of train engine fluids and commercially transported chemicals.

Transportation Corridor Recommendations:

- ✓ Wherever possible, ensure that drains discharge stormwater outside of the Zone I.
- ✓ Identify stormwater drains and the drainage system along transportation corridors. 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.
- ✓ Work with local emergency response teams to ensure that any spills within the Zone II can be effectively contained. Review storm drainage maps with emergency response teams.
- ✓ Work with the Town and State to best manage stormwater in the Zone II. Best management practices include street sweeping, vegetative swales, and regular catch basin inspection, cleaning and maintenance.
- ✓ Work with local officials during their review of the railroad right of way Yearly Operating Plans to ensure that water supplies are protected during vegetation control.

4. Hazardous Materials Storage and Use – Portions of the land area within the Zone II are commercial or industrial land uses. Many small businesses and industries use hazardous materials, produce hazardous waste products, and/or store large quantities of hazardous materials in UST/AST. If hazardous materials are improperly stored, used, or disposed, they become potential sources of contamination. Hazardous materials should never be disposed of to a septic system or floor drain leading directly to the ground.

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.

Hazardous Materials Storage and Use Recommendations:

- ✓ Educate local businesses on best management practices for protecting water supplies. Distribute the fact sheet "Businesses Protect Drinking Water" available in Appendix C and on www.mass.gov/dep/brp/dws/protect.htm, which provides BMP's for common business issues.
- ✓ Work with local businesses to register those facilities that are unregistered generators of hazardous waste or waste oil. Partnerships between businesses, water suppliers, and communities enhance successful public drinking water protection practices.
- ✓ Educate local businesses on Massachusetts floordrain requirements. See brochure "Industrial Floor Drains" for more information.

5. Presence of Oil or Hazardous Material Contamination Sites – The Zone II contains DEP Tier Classified Oil and/or Hazardous Material Release Sites indicated on the map as Release Tracking Numbers 4-0010893, 4-0000937, 4-0001081, 4-0011301, 4-0000279, 4-0012134, 4-0014257, 4-0012911, 4-0000026, 4-0000392, 4-0014264, 4-0013422, 4-0015670, 4-0015369, 4-0015974, 4-0000824, 4-0016335, 4-0000873, 4-0000823. Refer to the attached map and Appendix B for more information.

(Continued on page 10)

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?	**YES**	Follow Best Management Practices (BMP's) that focus on good housekeeping, spill prevention, and operational practices to reduce the use and release of hazardous materials.
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?	**YES**	Continue monitoring non-water supply activities in Zone Is.
Municipal Controls (Zoning Bylaws, Health Regulations, and General Bylaws)		
Does the municipality have Wellhead Protection Controls that meet 310 CMR 22.21(2)?	**YES**	The Town "Aquifer Protection District" bylaw meets DEP's requirements for wellhead protection. Refer to www.state.ma.us/dep/brp /dws/ for model bylaws and health regulations, and current regulations.
Do neighboring communities protect the Zone II areas extending into their communities?	**NO**	Work with neighboring municipalities to include Zone IIs in their wellhead protection controls.
Planning		
Does the PWS have a Wellhead Protection Plan?	**NO**	Develop a wellhead protection plan. Follow "Developing a Local Wellhead Protection Plan" available at: www.state. ma.us/dep/brp/dws/.
Does the PWS have a formal "Emergency Response Plan" to deal with spills or other emergencies?	**YES**	Augment plan by developing 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.
Does the municipality have a wellhead protection committee?	**NO**	Establish committee; include representatives from citizens' groups, neighboring communities, and the business community.
Does the Board of Health conduct inspections of commercial and industrial activities?	**YES**	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 additional efforts at commercial, industrial and municipal uses within the Zone II.

(Continued from page 8)

Oil or Hazardous Material Contamination Sites Recommendation:

- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.

6. Protection Planning – Currently, the Barnstable does have water supply protection controls that meet DEP's Wellhead Protection regulations 310 CMR 22.21(2). Protection planning protects drinking water by managing the land area that supplies water to a well. A Wellhead Protection Plan coordinates community efforts, identifies protection strategies, establishes a timeframe for implementation, and provides a forum for public participation. There are resources available to help communities develop a plan for protecting drinking water supply wells.

Protection Planning Recommendations:

- ✓ Continue to update and implement your Wellhead Protection Plan. Refer your protection team (the water quality advisory committee) to http://mass.gov/dep/brp/dws/protect.htm for a copy of DEP's guidance, "Developing a Local Wellhead Protection Plan".
- ✓ Coordinate efforts with local officials to compare local wellhead protection controls with current MA Wellhead Protection Regulations 310 CMR 22.21 (2). If they do not meet the most current regulations, adopt controls that meet 310 CMR 22.21(2). For more information on DEP land use controls see http://mass.gov /dep/brp/dws/protect.htm.
- ✓ Work with town boards to review and provide recommendations on proposed development within your water supply protection areas. To obtain information on build-out analyses for the town, see the Executive Office of Environmental Affairs' community preservation web site, http://commpres.env.state.ma.us/.
- ✓ Establish a protection team, and use the protection team to implement the goals of the Wellhead Protection Plan for the Water Company.

Other land uses and activities within the Zone II include auto repair shops, gas stations, dry cleaners, machine/metalworking facilities, and schools. Refer to Table 2 and Appendix A for more information about these land uses.

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 the risk of actual contamination, as illustrated in Figure 2. The water supplier is commended for taking an active role in promoting source protection measures in the Water Supply Protection Areas through:

- Posting water supply protection signs
- The acquisition and protection of land within the Zone II
- Working with the Town of Yarmouth to protect Zone II areas within Yarmouth.

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

- Education about Source Protection to consumers and elementary schools.

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.
- ✓ Educate 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 local businesses to ensure the proper storage, handling, and disposal of hazardous materials.
- ✓ Monitor progress on any ongoing remedial action conducted for the known oil or contamination sites.
- ✓ Develop and implement a Wellhead Protection Plan.

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 C.

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. 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 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. Regulated Facilities within the Water Supply Protection Area
B. Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas
C. Additional Documents on Source Protection

Table 2 Notes (pages 5, 6 & 7):
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 A: 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 B: 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.

APPENDIX A:
REGULATED FACILITIES WITHIN THE WATER SUPPLY PROTECTION AREA

DEP Permitted Facilities

DEP Facility Number	Facility Name	Street Address	Town	Permitted Activity	Activity Class
758	FOXRUN WWTP	770A MAIN ST	BARNSTABLE	Ground Water Facility (BRP)	Groundwater Discharge
1130	BARNSTABLE	MAIN ST	BARNSTABLE	Surface Water Facility (BRP)	Surface Water Discharge
10793	VERIZON NEW ENGLAND INC	16 HINKLEY RD	HYANNIS	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
27543	PACKAGING IND GROUP INC	AIRPORT RD	HYANNIS	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
27578	BAY STATE PIPING CO INC	174 AIRPORT RD	HYANNIS	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
28100	PURITAN PONTIAC ISUZU INC	460 YARMOUTH RD	HYANNIS	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
28103	TRANS ATLANTIC MOTORS INC	RTE 28 AT AIRPORT CIR	HYANNIS	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
28812	CLASSIC COACHWORKS INC	138 THORNTON DR	HYANNIS	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
29031	TRACY V W SUBARU INC	RTE 132	HYANNIS	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
29493	HOWARD BOAT SHOP INC	BEALE WAY	BARNSTABLE	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
29856	HYANNIS PORSCHE AUDI INC	RTE 132 & PHINNEYS LN	HYANNIS	Generator of Hazardous Waste	Small Quantity Generator

DEP Facility Number	Facility Name	Street Address	Town	Permitted Activity	Activity Class
30085	HYANNIS NISSAN PEUGEOT	STEVENS & NORTH STS	HYANNIS	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
30356	BUCKLERS GMC INC	100 RIDGEWOOD AVE	HYANNIS	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
31109	AIRPORT MOTORS INC	IYANNOUGH RD RTE 132	HYANNIS	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
33318	BEARD DICK CHEVROLET	RIDGEWOOD AVE	HYANNIS	Generator of Hazardous Waste	Small Quantity Generator
33475	JOHNS RESTORATION INC	81 PLANT RD	HYANNIS	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
33629	FORD OF HYANNIS INC	332 FALMOUTH RD	HYANNIS	Generator of Hazardous Waste	Small Quantity Generator
33818	CASHS AUTO BODY	251 BARNSTABLE RD	HYANNIS	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
34277	HYANNIS RESTORATION	119 THORNTON DR	HYANNIS	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
35123	HYANNIS PORSCHE AUDI	860 W MAIN ST	BARNSTABLE	Generator of Hazardous Waste	Small Quantity Generator
36526	BARNSTABLE COUNTY HOUSE OF CORR	BARNSTABLE CO FARM MAIN ST	BARNSTABLE	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
				Generator of Hazardous Waste	Small Quantity Generator of Waste Oil or PCBs
37068	CAPE COD COMMUNITY COLLEGE	RTE 132	WEST BARNSTABLE	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
54361	AGGREGATE INDUSTRIES NORTHEAST REGION	OFF PHINNEYS LN	HYANNIS	Plant	Air Quality Permit

DEP Facility Number	Facility Name	Street Address	Town	Permitted Activity	Activity Class
54550	BARNSTABLE HIGH SCHO	744 WEST MAIN ST	BARNSTABLE	Plant	Air Quality Permit
54551	BARNSTABLE GRADE 5	HIGH SCHOOL RD.	BARNSTABLE	Plant	Air Quality Permit
54559	BARNSTABLE MIDDLE SC	895 FALMOUTH RD.	BARNSTABLE	Plant	Air Quality Permit
54667	ACME LAUNDRY CO	124 RIDGEWOOD AVE	BARNSTABLE	Plant	Air Quality Permit
54696	CAPE COD AGGREGATES CORP	40 READY MIX DR	HYANNIS	Plant	Air Quality Permit
54761	FOURNIER PETROLEUM	BROOKS RD	BARNSTABLE	Plant	Air Quality Permit
207609	PARTYLITE WORLDWIDE INC	232 MAIN ST	BARNSTABLE	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
				Generator of Hazardous Waste	Small Quantity Generator of Waste Oil or PCBs
256328	PURITAN PONTIAC ISUZU GMC	90 HIGH SCHOOL RD EXT	BARNSTABLE	Generator of Hazardous Waste	Small Quantity Generator of Waste Oil or PCBs
				Generator of Hazardous Waste	Small Quantity Generator
261220	HYANNIS TOYOTA	1020 IYANOUGH RD, RT 132	BARNSTABLE	Generator of Hazardous Waste	Small Quantity Generator
269096	EVERETT H CORSON INC	1040 RTE 132	BARNSTABLE	Recycler of Hazardous Waste	Large Quantity Generator of Hazardous Waste
				Recycler of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
286879	MID CAPE MEDICAL CENTER	RTE 28 AT BEARSES WAY	BARNSTABLE	Generator of Hazardous Waste	Small Quantity Generator

DEP Facility Number	Facility Name	Street Address	Town	Permitted Activity	Activity Class
299831	SHEPLEY WOOD PRODUCTS INC	216 THORNTON DR	BARNSTABLE	Generator of Hazardous Waste	Very Small Quantity Generator of Waste Oil or PCBs
				Plant	Air Quality Permit
				Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
323394	SHELL 137772	590 IYANOUGH RD	BARNSTABLE	Fuel Dispenser	Fuel Dispenser
323394	MOTIVA ENTERPRISES LLC	590 IYANOUGH RD	BARNSTABLE	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
336524	KARLS BOAT SHOP	61D BODICK RD	BARNSTABLE	Generator of Hazardous Waste	Very Small Quantity Generator of Hazardous Waste
337375	AUTO ZONE 5160	332 RTE 28	BARNSTABLE	Generator of Hazardous Waste	Large Quantity Generator of Hazardous Waste
360147	BARNSTABLE TOWN OF	367 MAIN ST	BARNSTABLE	Generator of Hazardous Waste	Large Quantity Generator of Hazardous Waste
366954	ELDREDGE & BOURNE	538 BEARSES WAY	BARNSTABLE	Generator of Hazardous Waste	Very Small Quantity Generator of Waste Oil or PCBs
368632	BROOKS PHARMACY	360 BARNSTABLE RD	BARNSTABLE	Generator of Hazardous Waste	Small Quantity Generator
370982	STEWART PAINTING	152 RIDGEWOOD AVE	BARNSTABLE	Generator of Hazardous Waste	Large Quantity Generator of Hazardous Waste
371234	SENTINEL PRODUCTS	96 AIRPORT RD	BARNSTABLE	Plant	Air Quality Permit

For more information on underground storage tanks, visit the Massachusetts Department of Fire Services web site: http://www.state.ma.us/dfs/ust/ustHome.htm

Note: This appendix includes only those facilities within the water supply protection area(s) that meet state reporting requirements and report to the appropriate agencies. Additional facilities may be located within the water supply protection area(s) that should be considered in local drinking water source protection planning.

APPENDIX B – Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas

DEP's datalayer depicting oil and/or hazardous material (OHM) sites is a statewide point data set that contains the approximate location of known sources of contamination that have been both reported and classified under Chapter 21E of the Massachusetts General Laws. Location types presented in the layer include the approximate center of the site, the center of the building on the property where the release occurred, the source of contamination, or the location of an on-site monitoring well. Although this assessment identifies OHM sites near the source of your drinking water, the risks to the source posed by each site may be different. The kind of contaminant and the local geology may have an effect on whether the site poses an actual or potential threat to the source.

The DEP's Chapter 21E program relies on licensed site professionals (LSPs) to oversee cleanups at most sites, while the DEP's Bureau of Waste Site Cleanup (BWSC) program retains oversight at the most serious sites. This privatized program obliges potentially responsible parties and LSPs to comply with DEP regulations (the Massachusetts Contingency Plan – MCP), which require that sites within drinking water source protection areas be cleaned up to drinking water standards.

For more information about the state's OHM site cleanup process to which these sites are subject and how this complements the drinking water protection program, please visit the BWSC web page at http://www.state.ma.us/dep/bwsc. You may obtain site -specific information two ways: by using the BWSC Searchable Sites database at http://www.state.ma.us/dep/bwsc/sitelist.htm, or you may visit the DEP regional office and review the site file. These files contain more detailed information, including cleanup status, site history, contamination levels, maps, correspondence and investigation reports, however you must call the regional office in order to schedule an appointment to view the file.

The table below contains the list of Tier Classified oil and/or Hazardous Material Release Sites that are located within your drinking water source protection area.

APPENDIX B (continued) – Table of Tier Classified Oil and/or Hazardous Material Sites within the Water Supply Protection Areas

Table 1: Bureau of Waste Site Cleanup Tier Classified Oil and/or Hazardous Material Release Sites (Chapter 21E Sites) - Listed by Release Tracking Number (RTN)

RTN	Release Site Address	Town	Contaminant Type
4-0010893		BARNSTABLE	
4-0000937	THE CAPE COD CO	BARNSTABLE	Hazardous Material
4-0001081	RAY BLACKBURN AUTO SALVAGE BAP	BARNSTABLE	Oil
4-0011301	TEXACO STATION	BARNSTABLE	Hazardous Material
4-0000279	THE STRAIGHT WAY	BARNSTABLE	Hazardous Material
4-0012134	AT CORNER OF TEVYAN RD	BARNSTABLE	Oil
4-0014257	CUMBERLAND FARMS	BARNSTABLE	Oil
4-0012911	GRIFFIN AVIONICS	BARNSTABLE	Oil and Hazardous Material
4-0000026	CHARTER STATION NO. 6843 FMR	BARNSTABLE	Oil
4-0000392	BP SERVICE STATION	BARNSTABLE	Oil
4-0014264	GARAGE	BARNSTABLE	Hazardous Material
4-0013422	BARNSTABLE MOBIL STATION	BARNSTABLE	Oil
4-0015670	D'OLIMIPIO REAL ESTATE T	BARNSTABLE	Oil and Hazardous Material
4-0015369	JOSEPHS GAS STA FMR	BARNSTABLE	Oil
4-0015974	NO LOCATION AID	BARNSTABLE	Oil
4-0000824	ATWOOD OIL (HUBBARD OIL CO INC)	BARNSTABLE	Oil
4-0016335	PENTTIS AUTOMOTIVE	BARNSTABLE	Oil
4-0000873	AIRPORT MOTORS INC BAP	BARNSTABLE	Hazardous Material
4-0000823	BARNSTABLE AIRPORT	BARNSTABLE	Oil and Hazardous Material

For more location information, please see the attached map. The map lists the release sites by RTN.