



## 2006 Annual Drinking Water Quality Report for the Provincetown Water Department

The Provincetown Water Department is proud to provide you with the Year 2006 Annual Drinking Water Quality Report. Our objective is to help keep you abreast of ongoing and upcoming water system projects; local, state and federal drinking water regulations; and Provincetown's annual water quality results. The Provincetown Water Department is committed to supplying our customers with high-quality drinking water 24 hours a day, 365 days a year. The Town of Provincetown Public Water System DEP identification number is 4242000.

### Customer Views and Questions

Please call the Water Department at **508-487-7064** with any questions, concerns, or problems regarding your water service (billing, water quality, meters, leaks, policies); or the water system (water main breaks, fire hydrants, upcoming activities). Our staff of drinking water professionals is there to assist you:

**Water Superintendent**  
**Director of Public Works**

**Carl Hillstrom, Woodard & Curran**  
**David F. Guertin**

The Water Department Office is open Monday through Friday 7 a.m. until 4 p.m. Supplemental information about the Water Department including Rules and Regulations for water service can be found on our website: [www.provincetown-ma.gov](http://www.provincetown-ma.gov). This report is also available on the Town's website, at the Provincetown Public Library, and at the Water Department offices.

The Provincetown Water Department is governed by the Provincetown Water & Sewer Board, which meets at the Grace Gouveia Building, 26 Alden Street, Provincetown. The public is invited. You may contact the Water Department or check the Town web site for a meeting schedule. In addition to these local resources, additional information about drinking water quality and potential health effects can be obtained by calling the Environmental Protection Agency's **Safe Drinking Water Hotline: 800-426-4791**.

### Water System Information

The Provincetown Water Department supplies drinking water to the Town of Provincetown and several areas within the Town of Truro. Provincetown's water supply sources consist of three wellfields located in the Pamet Lens of the Cape Cod Aquifer. The Pamet Lens extends from the north side of the Pamet River to Pilgrim Lake. The primary source is the South Hollow Wellfield, consisting of eight individual wells. Provincetown's secondary supply is the Knowles Crossing Wellfield, consisting of two active wells. During the summer peak season (June 1 through October 1) the Town of Provincetown also uses two additional wells located at the former North Truro Air Force Base, which now lies within the boundaries of the Cape Cod National Seashore, under a Special Use Permit issued annually by the National Park Service.

Groundwater pumped from these sources is treated at two chemical addition facilities for corrosion control and disinfection, one at South Hollow and the other at the Knowles Crossing Wellfield. Potassium hydroxide is used to increase the pH of the water to a target level of 7.5 for corrosion control, and chlorine (sodium hypochlorite) is added to protect the water distribution system from microbiological contaminants. A polyphosphate sequestrant is used for the control of trace levels of iron and manganese.

Treated water from the wellfields is pumped into the water distribution network and delivered through a 12-inch transmission main traveling from South Hollow Road and along Shore Road in North Truro to the Provincetown town line. The water distribution system is made up of approximately 38 miles of pipe of varying size between 16-inches and 6-inches in diameter. The water distribution system also includes three water storage tanks: the Mt. Gilboa tank in the east end of Provincetown which has a capacity of approximately 2.7 million gallons; and the two Winslow Street tanks located adjacent to Veteran's Memorial School, which have capacities of 1.1 million gallons and 3.8 million gallons. Together these three water storage tanks provide water during peak hourly water demands and for fire protection.

### Cross-Connection Control

A cross-connection is an existing or potential connection through which drinking water could be contaminated or polluted due to a backflow or backsiphonage. Regulations are specific as to the water supplier's and water user's responsibilities regarding cross-connection protection. The water supplier has the responsibility to prevent contamination of the water system from the source to the user's connection, and the user is responsible for keeping contaminants out of the water system from their connection. Common cross-connections are heating, cooling, fire protection, and irrigation systems. Garden hoses are a common source of cross-connection at our homes as they are often contaminated with soaps, cleaning chemicals, fertilizers, pool water, etc.



The Provincetown Water Department maintains a DEP-approved cross-connection program whereby all industrial, commercial, and institutional premises are surveyed for cross-connections and, when identified, mandates their elimination or the installation of appropriate cross-connection control device(s). For more information regarding cross-connection control, contact Carl Hillstrom at the Provincetown Water Department.

## **Source Water Assessment and Protection**

The Source Water Assessment and Protection (SWAP) program assesses the susceptibility of public water supplies to potential contamination by microbiological pathogens and chemicals. A susceptibility ranking of high was assigned to this system using information collected by the DEP. Pesticide storage and use, gas stations, junk yards and salvage yards, military facilities, and underground storage tanks were identified as sources of potentially significant contamination located within the source water areas. For more information, contact Carl Hillstrom. The complete SWAP report is available at the Water Department Office, 26 Alden Street or on the website <http://www.mass.gov/dep/water/drinking/4242000.pdf>.

## **Projects and Activities**

The Water Department has an active and ongoing program for making improvements to the water system to provide better quality water more efficiently. Over the last year we have completed the following projects:

**Water Storage Tank Improvements:** The Town received \$800,000 from the Massachusetts Community Development Block Grant program that allowed the Water Department to repair and paint the Winslow 2 storage tank. In addition, the grant was used to install mixing systems in our two largest tanks, Winslow 2 and Mount Gilboa, that will enhance our water quality by ensuring that continuous mixing of the stored water is occurring. This mixing is an effective way to prevent coliform bacteria growth from occurring, which the Department frequently monitors for as one of our DEP operating requirements. **Leak Detection and Repair:** The Water Department continued with water conservation efforts. We completed a system-wide leak detection survey last Spring that identified several significant leaks. These were immediately repaired, eliminating an estimated 20 million gallons per year of lost water. In addition to these system-wide surveys that are performed on a regular basis, the Water Department also has its own leak detection equipment that allows us to spot check locations throughout the year. **Meter Replacement Program:** We continued with a meter replacement program that allows us to record water usage more accurately and frequently. During 2006 we installed 242 new meters. Our goal is to replace all of the old service meters in the system so that none of them are more than ten years old.

## **Public Health and Drinking Water**

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals, and in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include: **Microbial Contaminants**, such as viruses, and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife. **Pesticides and Herbicides**, that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses. **Inorganic Contaminants**, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming. **Organic Chemical Contaminants**, including synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems. **Radioactive Contaminants**, that can be naturally-occurring or be the result of oil and gas production and mining activities.

**In order to ensure that tap water is safe** to drink, the Department and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and the Massachusetts Department of Public Health regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

**Drinking water, including bottled water**, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

**Some people may be more vulnerable** to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791); Web page [www.epa.gov/safewater](http://www.epa.gov/safewater) or the Massachusetts DEP (Southeast Regional office 508-946-2700; Web page [www.state.ma.us/dep](http://www.state.ma.us/dep)).

# Water Quality Summary

The Water Department is committed to providing our customers with the highest quality drinking water that meets or exceeds DEP drinking water standards and performs regular sampling (monthly or more frequently) throughout the distribution system to monitor these standards. Over the course of the year the Water Department performs over 1,000 water quality analyses, tracking more than 120 different contaminants, to ensure that our water quality meets these standards. One of these tests is for coliform bacteria, and our July 2006 sampling round detected hits at several locations. Of 94 samples collected, 15% had detections. The Water Department, in coordination with DEP, immediately implemented several steps, which included additional chlorination at our storage tanks and at key locations in our distribution system. These steps were effective in resolving the situation, as confirmed by repeated follow-up sampling for both coliform and other forms of bacteria, which were not detected in these follow-up samples. One of the suspected causes of these coliform detections was stagnant waters that, in conjunction with warmer summer temperatures, can encourage bacterial growth. It is for this reason that the mixing systems described above were installed in the Winslow 2 and Mount Gilboa tanks.

A summary of the water quality analytical results for samples collected from January 1 through December 31, 2006 is provided in the summary table below. Not listed are contaminants that were tested for but not detected, nor data older than five years.

## Regulated Contaminants

Microbial Contaminants	Highest % Positive In a month	Total # Positive	MCL	MCLG	Typical Source(s) of Contaminant	Violation (Y/N)
Total Coliform	15%	0-15%	5%	0	Naturally present in the environment	Y

Inorganic Contaminants	Date(s) Sampled	Highest Level Detected	Range Of Detection	MCL	MCLG	Typical Source(s) of Contaminant	Violation Y/N
Nitrate (ppm)		0.90	0.43 - 0.90	10	0	Run-off from fertilizer; leaching from septic tanks; sewage; erosion of natural deposits	N

Organic Chemical Contaminants	Date(s) Sampled	Highest Level Detected	Range Of Detection	Annual Average	MCL	MCLG	Typical Source(s) of Contaminant	Violation Y/N
Total Trihalomethanes (TTHMs) (ppb)		7	3 - 7	5.25	80	0	By-product of water chlorination	N
Haloacetic Acids (HAA5) (ppb)		4.2	ND - 4.2	2.00	60	0	By-product of water chlorination	N

Radioactive Contaminants	Date(s) Sampled	Highest Level Detected	Range Of Detection	MCL	MCLG	Typical Source(s) of Contaminant	Violation Y/N
Gross Alpha Activity (pCi/l)	2003	0.9		15	0	Erosion of natural deposits	N
Radium 226 & 228 (pCi/l)	2003	1.0		5	0	Erosion of natural deposits	N

**Unregulated Contaminants** (those contaminants for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted)

Inorganic Contaminants	Date(s) Sampled	Highest Level Detected	Range Of Detection	Average Detected	SMCL	ORSG	Typical Source(s) of Contaminant
Sodium (ppm)		73	38 - 73	56		20	Natural sources; runoff from use as salt on roadways; by-product of treatment process
Sulfate (ppm)		14	11		250		Natural sources

Organic Chemical Contaminants	Date(s) Sampled	Highest Level Detected	Range Of Detection	Average Detected	SMCL	ORSG	Typical Source(s) of Contaminant
Methyl-Tertiary-Butyl Ether (MTBE) (ppb)		0.7	ND - 0.7		20 - 40	70	Fuel additive

Lead & Copper	Date(s) Sampled	90 <sup>th</sup> Percentile	Action Level	MCLG	# of sites Sampled	# of sites above the AL	Typical Source(s) of Contaminant
Lead (ppb)	2005	8	15	0	22	1	Corrosion of household plumbing systems; erosion of natural deposits
Copper (ppb)	2005	0.4	1.3	0	22	0	Corrosion of household plumbing systems; erosion of natural deposits; Leaching from wood preservatives

## Health Effects Statements

**Total Coliform:** Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

**Sodium:** Sodium sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure who drink water containing sodium should be aware of the sodium levels where exposures are being carefully controlled.

**Special Information Concerning Lead -** Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested. Flush your tap for 30 seconds to 2 minutes before using tap water to reduce lead content. Additional information is available from the **Safe Drinking Water Hotline, 800-426-4791.**

## Definitions

<b>90<sup>th</sup> %tile</b>	Out of every 10 homes, 9 were at or below this level
<b>MCL</b>	Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs (see below) as feasible using the best available treatment technology.
<b>MCLG</b>	Maximum Contaminant Level Goal: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
<b>MRDL</b>	Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for the control of microbiological contamination.
<b>MRDLG</b>	Maximum Residual Disinfectant Level Goal: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
<b>ppm</b>	One part per million.
<b>ppb</b>	One part per billion.
<b>AL</b>	Action Level: The concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system must follow.
<b>NR</b>	Not regulated (currently there is no MCL for this compound).
<b>N/A</b>	Not applicable.
<b>ND</b>	Not detected. Refers to the detection limit of the chemical analysis instrument or procedure.
<b>TT</b>	Treatment Technique. A required process intended to reduce the level of a contaminant in drinking water.
<b>pCi/l</b>	Picocuries per liter (a measure of radioactivity)
<b>ORSG</b>	Massachusetts Office of Research and Standards Guideline. This is the concentration of a chemical in drinking water at or below which adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.
<b>SMCL</b>	Secondary Maximum Contaminant Level: These standards are developed to protect the aesthetic qualities of drinking water and are not health based.