



*Annual*  
**WaterQuality**  
**Report**  
*Water testing performed in 2010*

*Presented By* \_\_\_\_\_  
**Dartmouth Water Division**

PWS ID#: MA4072000

## Continuing Our Commitment

Once again we proudly present our annual water quality report. With a focus on customer service and efficient operations, we continue to strive for excellence through new water quality programs that will ensure reliable drinking water supplies for years to come. To maintain our commitment to you, we routinely collect and test water samples every step of the way, from the source waters right to your home or business, checking purity and identifying potential problems. We work with only state-certified laboratories that perform the required testing to maintain our quality assurance program. Staffed by highly trained scientists and technicians, these labs have the latest and most sophisticated instruments and can measure substances down to one part per trillion! We are committed to providing you with this information about your water supply because customers who are well informed are our best allies in supporting improvements necessary to maintain the highest drinking water standards.

This edition covers all testing completed from January through December 2010. We remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all of our water users. Please visit our annual open house, held at the beginning of May, when we celebrate National Drinking Water Week.

Dartmouth Water is a division of the Department of Public Works under DPW Director David T. Hickox. For more information about this report, or for any questions relating to your drinking water or this report, please call Steven M. Sullivan, Water and Sewer Superintendent, at (508) 999-0742.

## Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.

## Source Water Assessment Program

The Massachusetts Department of Environmental Protection (MADEP) has prepared a Source Water Assessment Program (SWAP) report for the water supply sources serving this water system. The SWAP report recommends that Dartmouth establish a Wellhead Protection Committee and also commends Dartmouth for taking an active role in promoting source protection measures in the Water Supply Protection Areas. The SWAP report recommends that we continue to monitor Zone I and remove all non-water supply activities. The report also recommends that we educate residents on ways they can help in protecting drinking water sources, and work with emergency response teams to ensure they are aware of the stormwater drainage in Zone II. Residents can help protect sources by practicing good septic system maintenance, supporting water supply protection initiatives at town meetings, properly disposing of hazardous household chemicals during hazardous materials collection days, and limiting pesticide and fertilizer use. The complete SWAP report is available at the Water Division on Allen Street and online at [www.mass.gov/dep/water/drinking/4072000.pdf](http://www.mass.gov/dep/water/drinking/4072000.pdf). For more information, call Steven Sullivan at (508) 999-0742.

### New Bedford

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 the New Bedford Water Division using the information collected during the assessment by the Massachusetts Department of Environmental Protection. The complete SWAP report is available at the Water Division Office, 1105 Shawmut Avenue, New Bedford. For more information, contact Charles Kennedy at (508) 763-2231.

## Lead and Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

## What's a Cross-Connection?

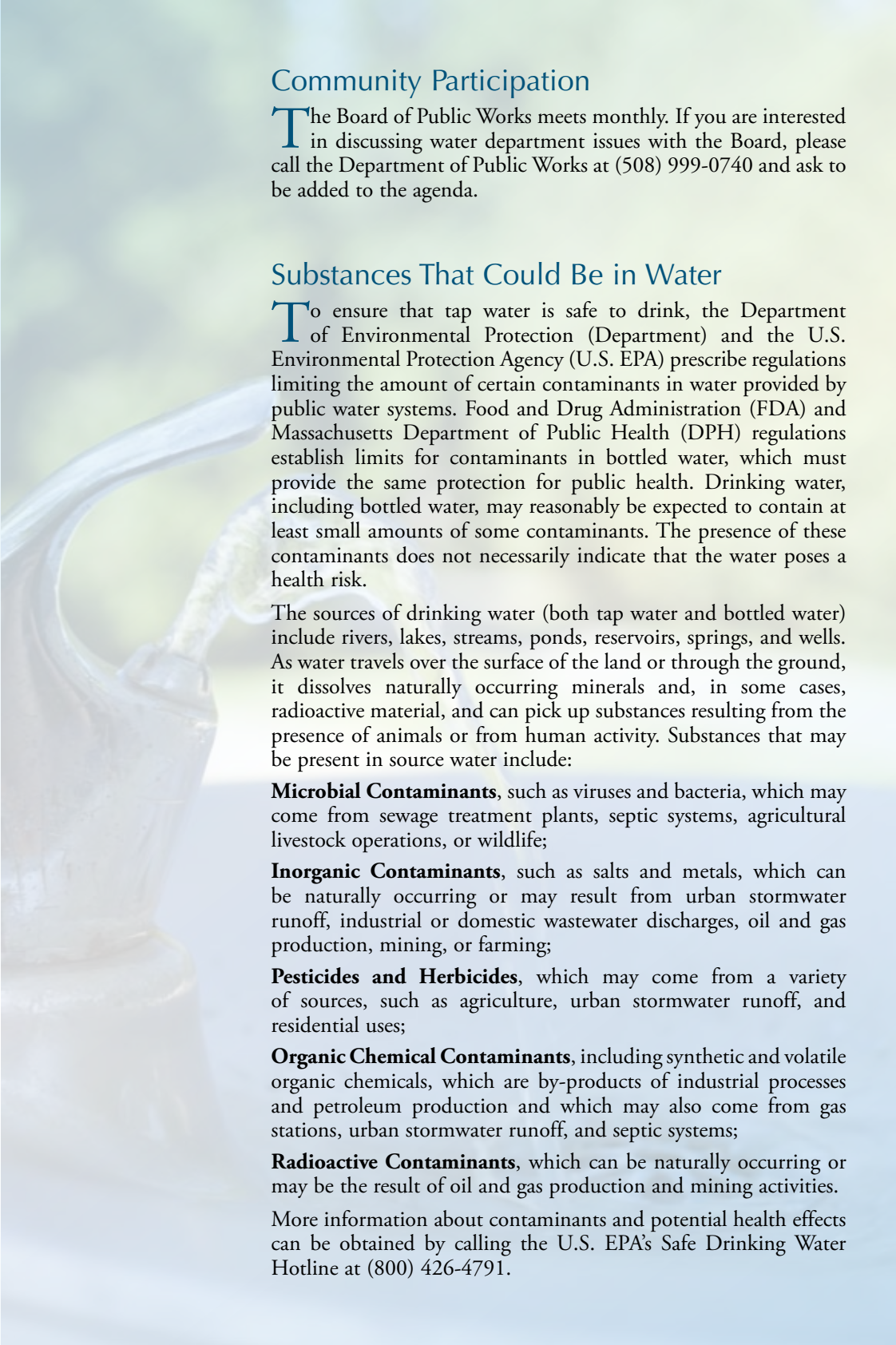
Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

For more information, review the Cross-Connection Control Manual from the U.S. EPA's Web site at <http://water.epa.gov/infrastructure/drinkingwater/pws/crossconnectioncontrol/index.cfm>. You can also call the Safe Drinking Water Hotline at (800) 426-4791.

## Where Does My Water Come From?

Dartmouth's water is supplied from 14 ground water wells, gravel-packed or naturally developed, and one pumping station. Wells A, B, C, F-1, and F-2 have a combined capacity of 1,555 gallons per minute (gpm). These wells are located in the area of 299 Chase Road. Wells D, E-1, and E-2 have a combined capacity of 1,550 gpm. These wells are located in the area of 687 Chase Road. Wells V-1, V-2, V-3, Panelli-1, and Panelli-2 have a combined capacity of 1,370 gpm. These wells are located in the area of 579 Old Westport Road. The Route Six well is inactive. A copy of the map where the wells are located is available at the Water Division office at 751 Allen Street.

Purchased water from the City of New Bedford is treated at the Quittacass Water Treatment Plant and comes from a surface supply comprised of five ponds. The principal storage area is the Little Quittacass Pond, located in the Town of Rochester. The other ponds are Great Quittacass, Pocksha, Assawomsett, and Long Pond situated in the towns of Freetown, Lakeville, and Middleboro. Treatment consists of conventional filtration, disinfection, corrosion control, and fluoridation. Dartmouth pumps the water into our system for a facility located on Faunce Corner Road with a max rate of 4,000 gallons per minute.



## Community Participation

The Board of Public Works meets monthly. If you are interested in discussing water department issues with the Board, please call the Department of Public Works at (508) 999-0740 and ask to be added to the agenda.

## Substances That Could Be in Water

To ensure that tap water is safe to drink, the Department of Environmental Protection (Department) and the U.S. Environmental Protection Agency (U.S. EPA) prescribe regulations limiting the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water, which 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 these contaminants does not necessarily indicate that the water poses a health risk.

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. Substances that may be present in source water include:

**Microbial Contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

**Inorganic Contaminants**, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

**Pesticides and Herbicides**, which may come from a variety of sources, such as agriculture, urban stormwater runoff, and residential uses;

**Organic Chemical Contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and which may also come from gas stations, urban stormwater runoff, and septic systems;

**Radioactive Contaminants**, which can be naturally occurring or may be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

## About Our Violations

### Lead and Copper Control Requirements

Our water system recently exceeded a drinking water standard. Even though this is not an emergency, as our customers, you have a right to know what happened, what you should do, and what we are doing to correct this situation.

We routinely sample water at consumers' taps for lead. The tests show lead levels in the water above the limit, or "action level." The Town of Dartmouth Water Division has had a corrosion control program in operation for many years.

Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

The Dartmouth Water Division had made a change to the corrosion control treatment process by changing the type and strength of the chemical used for corrosion control. Operationally, maintaining a consistent pH in the system has been difficult due to the chemical characteristics.

The Dartmouth Water Division is in the process of changing to a more manageable chemical that will maintain a more stable and balanced pH throughout the water distribution system.

This is not an emergency. If it had been, you would have been notified immediately. For more information, please contact Steven M. Sullivan at (508) 999-0742 or at 751 Allen Street, Dartmouth, MA 02747.

### Total Coliform Bacteria

During the month of October, 7 of 55 samples tested positive for the presence of coliform bacteria. 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.

In response, the Dartmouth Water Division raised the chlorine level at our treatment facilities and initiated water system flushing in order to distribute chlorine to the water distribution system more effectively. This water main flushing process restored chlorine levels in the water distribution system in accordance with Dartmouth Water Division standards.

During the month of November, 4 of 54 samples tested positive for the presence of coliform bacteria.

In response, the Dartmouth Water Division raised the chlorine level at our treatment facilities and initiated water system flushing in order to distribute chlorine to the water distribution system more effectively. This water main flushing process restored chlorine levels in the water distribution system in accordance with Dartmouth Water Division standards.

### Presence of E. coli in a Ground Water Sample From Well E-1

The Dartmouth Water Division was informed on October 7, 2010, that one of our routine bacteria samples collected (October 5, 2010) from the raw ground water source at Well E-1 prior to treatment was E. coli positive. All the water that entered the public water distribution system was treated.

Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.

In response to this incident, the Water Division consulted with the Massachusetts Department of Environmental Protection Drinking Water Program and followed all required federal Ground Water Rule (GWR) procedures to properly address the situation.

As required, October 7, 2010, by the Ground Water Rule, we collected 5 samples from Well E-1 for fecal contamination analysis.

The first Well E-1 sample was positive for fecal contamination (E. coli). In response, we notified our customers by newspaper within 24 hours of learning of this positive sample. Additional sampling of this well indicated a negative result of E. coli. To correct this situation, we have worked to install a monitoring station on Chase Road to verify a proper chlorine residual is in the distribution, at the first water connection

## Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

### REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	Dartmouth Water Division		New Bedford Water Department		VIOLATION	TYPICAL SOURCE
				AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH		
Chlorine (ppm)	2010	[4]	[4]	0.30	ND-1.75	1.76	1.29-2.56	No	Water additive used to control microbes
<i>E. coli</i> [at the ground water source] <sup>1</sup> (# positive samples)	2010	NA	0	1	NA	NA	NA	No	Human and animal fecal waste in untreated ground water
Fluoride <sup>2</sup> (ppm)	2010	4	4	NA	NA	1.3	0.7-1.3	No	Water additive which promotes strong teeth
Haloacetic Acids [HAA] (ppb)	2010	60	NA	24.4	ND-70	42	25-59	No	By-product of drinking water disinfection
Nitrate (ppm)	2010	10	10	0.58	0.47-0.69	0.08	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Nitrite (ppm)	2010	1	1	0.13	ND-0.45	NA	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] <sup>3</sup> (ppb)	2010	80	NA	49.2	3.7-90.9	42	32-50	No	By-product of drinking water disinfection
Total Coliform Bacteria (% positive samples)	2010	5% of monthly samples are positive	0	13%	NA	NA	NA	Yes	Naturally present in the environment
Turbidity <sup>4</sup> (NTU)	2010	TT	NA	NA	NA	0.20	0.05-0.20	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2010	TT=95% of samples<0.3	NA	NA	NA	95	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	EXCEEDANCE	TYPICAL SOURCE
Lead (ppb)	2010	15	0	16	5/30	Yes	Corrosion of household plumbing systems; Erosion of natural deposits

### SECONDARY SUBSTANCES (DARTMOUTH WATER DIVISION)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Odor (TON)	2010	3	NA	4	1-4	No	Naturally occurring organic materials

### UNREGULATED SUBSTANCES<sup>5</sup>

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	Dartmouth Water Division		New Bedford Water Department		TYPICAL SOURCE
		AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	
Bromodichloromethane (ppb)	2010	4.47	2.2-6.6	NA	NA	Discharge from industrial use; By-product of drinking water treatment; Produced from naturally occurring precursor chemicals
Chlorodibromomethane (ppb)	2010	1.03	0.9-1.3	NA	NA	Discharge from industrial use; By-product of drinking water treatment; Produced from naturally occurring precursor chemicals
Chloroform (ppb)	2010	13.2	3.5-24.8	NA	NA	Discharge from industrial use; By-product of drinking water treatment; Produced from naturally occurring precursor chemicals
N-Nitrosodimethylamine [NDMA] (ppt)	2009	NA	NA	2	ND-2	Discharge from industrial use; By-product of drinking water treatment; Produced from naturally occurring precursor chemicals
Sodium <sup>6</sup> (ppm)	2010	45.8	38-54	30	NA	Natural sources; Runoff from use as salt on roadways; By-product of treatment process

<sup>1</sup> Subsequent sampling indicated a negative finding of E. coli.  
Note: these findings are from our source water only NOT from our drinking water.

<sup>2</sup> The New Bedford DPI-Water Division started treating the drinking water with fluoride as of January 8, 2007, as directed by the New Bedford Health Department. The optimum dosage is 1.0 ppm, with an operational range of 0.90 to 1.10 ppm. At this level, it is safe, odorless, colorless, and tasteless. There are over 3.9 million people in 140 Massachusetts water systems and 184 million people in the United States who receive the health and economic benefits of fluoridation.

<sup>3</sup> Some people who drink water containing Trihalomethanes in excess of the MCL over many years may experience problems with their liver or central nervous system and may have an increased risk of getting cancer.

<sup>4</sup> Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

<sup>5</sup> Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the U.S. EPA in determining their occurrence in drinking water and whether future regulation is warranted.

<sup>6</sup> The Massachusetts Department of Environmental Protection maintains a guideline level of 20 ppm for sodium.

## Definitions

**90th Percentile:** Out of every 10 homes sampled, 9 were at or below this level.

**AL (Action Level):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**MCL (Maximum Contaminant Level):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**MCLG (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.

**MRDL (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 control of microbial contaminants.

**MRDLG (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.

**NA:** Not applicable.

**ND (Not detected):** Indicates that the substance was not found by laboratory analysis.

**NTU (Nephelometric Turbidity Units):** Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

**ppb (parts per billion):** One part substance per billion parts water (or micrograms per liter).

**ppm (parts per million):** One part substance per million parts water (or milligrams per liter).

**ppt (parts per trillion):** One part substance per trillion parts water (or nanograms per liter).

**TON (Threshold Odor Number):** A measure of odor in water.

**TT (Treatment Technique):** A required process intended to reduce the level of a contaminant in drinking water.

