

# Water Quality Report – 2011

**What is the source of my drinking water?** Pembroke Water Works derives its water from 5 gravel packed wells. The wells are located in Pembroke and Allenstown and are pumped into two storage tanks, one in Pembroke and one in Allenstown on the Hooksett Town line. The 3 wells in Pembroke are near the Soucook River and the wells in Allenstown are near the Suncook River.

**How can I get involved?** Meetings of the Pembroke Water Works' Board of Commissioners are held on the third Thursday of each month beginning at 6:00 p.m. and are open to the public. The meetings are held at the Pembroke Water Works office at 346 Pembroke Street, Pembroke. If you have any questions or need more information, let us know. You may call us at (603) 485-3362, fax (603) 485-1956, or e-mail [pembrokewaterworks@comcast.net](mailto:pembrokewaterworks@comcast.net) and or by mail at Pembroke Water Works, PO Box 234, Pembroke, NH 03275-0234. Christopher Culberson, the Superintendent, can be reached at the office Monday through Friday 8:00 a.m. to 4:00 p.m. Please visit the following website for the Town Of Pembroke Water Works [www.pembroke-nh.com/ww.asp](http://www.pembroke-nh.com/ww.asp).

## **Why are contaminants in my water?**

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of 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 US Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791).

**Violations and Other information:** 72 Routine water samples are taken within a calendar year in order to determine if bacteria is present within the drinking water. During the Month of July, 2010, 2 routine samples were present with coliform bacteria. A small maintenance dose of chlorine was started at .1 ppm within the system and repeat samples were taken. The repeat samples were absent of coliform bacteria. The reason for the presence of bacteria during the July Routine sample was due to increased well pumping in order to meet our daily demand during the hot weather pattern with very little ability to turn over the water in the Storage Tank since the Pembroke Water Works does not chlorinate on a regular basis.

## **Do I need to take special precautions?**

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 can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/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 (1-800-426-4791).

## **Definitions:**

**MCLG:** Maximum Contaminant Level Goal, or 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.

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

**AL:** Action Level, or the concentration of a contaminant which, when exceeded, triggers treatment or other requirements which a water system must follow.

**TT:** Treatment Technique, or a required process intended to reduce the level of a contaminant in drinking water.

**MRDLG:** Maximum residual disinfectant level goal or the level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants (for water systems that use chlorine).

**MRDL:** Maximum Residual Disinfectant Level or the highest level of a disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary for control of microbial contaminants (for water systems that use chlorine)..

## **Abbreviations:**

**ppm:** parts per million    **ppb:** parts per billion    **ppt:** parts per trillion    **ppq:** parts per quadrillion    **pCi/L:** pico curies per liter

**NTU:** Nephelometric Turbidity Unit

**NA** – Not applicable    **nd:** not detectable at testing limits    **AL:** Action Level    **TT:** Treatment Technique

**Sample Dates:** The results for detected contaminants listed below are from the most recent monitoring done in compliance with regulations ending with the year 2009. Results prior to 2009 will include the date the sample was taken. The State of New Hampshire

allows water systems to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Thus some of the data present, though representative, may be more than one year old.

## DETECTED WATER QUALITY RESULTS

Contaminant (Units)	Level Detected	MCL	MCLG	Violation YES/NO	Likely Source of Contamination	Health Effects of Contaminant
<b>Microbiological Contaminants</b>						
Total Coliform Bacteria	72 routine Samples taken 2 pos 7/20/2011 Repeats Absent	< 40 samples >1 is positive	0	YES 7/20/2011	Naturally present in the environment	Coliforms are bacteria that are naturally present 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.
<b>Radioactive Contaminants</b>						
Compliance Gross Alpha (pCi/L)	Well #2 .3 12/20/06 Well #6 2.5 12/20/06	15	0	NO NO	Erosion of natural deposits	Certain minerals are radioactive and may emit a form of radiation know as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Combined Radium pCi/L 226 + 228	Well #2 .3 12/20/06 Well #6 12/20/06	5	0	NO NO	Erosion of natural deposits	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
<b>Inorganic Contaminants</b>						
Barium (ppm)	Well #2 .005 1/12/2010 Well #3 .015 1/12/2010 Well #4 .002 1/18/2011 Well #7 .001 1/12/2010	2	2	NO NO NO NO	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
Copper (ppm)	BB #1 .006 1/18/2011  .85 System wide* 10/09/08	AL=1.3	1.3	NO	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
Fluoride (ppm)	Well #2 0.2 3/21/07 Well #3 0.1	4	4	NO NO	Erosion of natural deposits; water additive which promotes	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in

	1/18/2011				strong teeth; discharge from fertilizer and aluminum factories	children less than nine years old. Mottling also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
Lead (ppb)	Number of samples above the AL of 15 ppb were None.  .002 System wide* 10/09/08	AL=15	0	NO	Corrosion of household plumbing systems, erosion of natural deposits	(15 ppb in more than 5%) 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 and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791). (above 15 ppb) 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.
Nitrate (as Nitrogen) (ppm)	Well #2 .9 Well #6 0.5 Well #3 1.4  1/18/2011	10	10		Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	(5 ppm through 10ppm) Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider. (Above 10 ppm) Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.

**Synthetic Organic Contaminants including Pesticides and Herbicides**

**Volatile Organic Contaminants**

Methyl tertiary-butyl ether (MTBE) (ppb)	Well #2 .7 2/11/2011 Well #3 .6 2/11/2011 Well #6 1 3/21/2008	13	13	NO  NO  NO	A gasoline additive	The New Hampshire Bureau of Health Risk Assessment considers MTBE a possible human carcinogen.
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**Description of Drinking Water Contaminants:**

**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, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

**Inorganic contaminants**, such as salts and metals, which can be naturally occurring or result from urban storm water 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 storm water runoff, and

residential uses.

**Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

**Radioactive contaminants**, which 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**, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. The United States Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

**Radon:** Radon is a radioactive gas that you can't see, taste or smell. It can move up through the ground and into a home through cracks and holes in the foundation. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. It is a known human carcinogen. Breathing radon can lead to lung cancer. Drinking water containing radon may cause an increased risk of stomach cancer. Presently the EPA is reviewing a standard for radon in water.

**Lead:** 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. This water system is responsible for high quality drinking water, but can not control the variety of materials used in your plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing cold water your tap for at least 30 seconds before using water for drinking or cooking. Do not use hot water for drinking and 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 <http://www.epa.gov/safewater/lead>.

### **Source Water Assessment Summary:**

The NH Department of Environmental Services has prepared a Source Water Assessment Report for the source(s) serving this community water system, assessing the sources' vulnerability to contamination. The results of the assessment, prepared on (date(s)), are as follows:

(First source name and/or description), received (number) high susceptibility ratings, (number) medium susceptibility ratings, and (number) low susceptibility ratings.

(Second source name and/or description) received (number) high susceptibility ratings, (number) medium susceptibility ratings, and (number) low susceptibility ratings.

(Third source name and/or description), received (number) high susceptibility ratings, (number) medium susceptibility ratings, and (number) low susceptibility ratings.

The complete Assessment Report is available for review at (water system office or other location). For more information call (water system's contact and telephone number) or visit NH Department of Environmental Services Drinking Water & Groundwater Bureau web site at [www.des.nh.gov/dwgb](http://www.des.nh.gov/dwgb)