



# 2007 WATER QUALITY REPORT

PWS# 2208000

## TOWN OF NORFOLK DEPARTMENT OF PUBLIC WORKS - WATER DIVISION

The Norfolk Department of Public Works continuously strives to produce the highest quality water possible to meet or surpass everyday water quality standards. We monitor both of our sources and distribution system very closely. The standards we operate under were enacted by the U.S. Congress as the Safe Drinking Water Act (SDWA) in 1974 and were amended in 1986 and 1996. In order to ensure that tap water is safe to drink, the Department of Environmental Protection (DEP) and the Environmental Protection Agency (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 (MDPH) establish limits for contaminants in bottled water that must provide the same protection for public health.

If you would like to know more about the Norfolk water supply or if you are interested in participating in the decision making process, please contact the Norfolk Department of Public Works at 508-528-4990 with any questions, comments or concerns. We are located at 33 Medway Branch Road off of Boardman Street. We encourage public interest and participation in our community's decisions affecting drinking water. Meeting dates for the Board of Selectmen are posted at the Town Hall and published on the town's website @ [www.virtualnorfolk.org](http://www.virtualnorfolk.org).

### **2007 Overview & Water System Improvements:**

In 2007, the Water Division distributed 210,464,053 gallons of water to 2,091 water customers. We continued the permit application and process for developing the Gold Street Supplemental Well and are working to pursue additional well locations on the Gold Street site to ensure the Town of Norfolk and its customers additional sources of water. We have completed the town-wide installation of the fixed network wireless meter reading system which will provide a more accurate accountability of water used, and due to the ability to monitor usage daily, we have the ability to reduce our lost water by detecting leaks as they occur. The DPW continues to conduct leak detection surveys annually to reduce unaccounted for water in the system and keep water leaks at a minimum. The Weeber Tank located behind Town Hall was taken out of service in October 2007 to be completely rehabilitated; the tank has been cleaned, repaired and repainted inside and out. The project is scheduled for completion in early 2008. A new 12" water main was installed on Pine Street. Finally, design work began to improve system hydraulics for Maple Street, Bush Pond Road, Medway Branch Road, and Park Street. The DPW continues to flush the system to maintain water quality.

### **Water Source:**

Norfolk's water is supplied from two gravel-packed wells that draw from the Charles River Watershed. The Gold Street Well, 220800-01G, located near the intersection of Medway Street and Myrtle Street and the Spruce Road Well, 2208000-02G, located at the intersection of Mirror Lake Avenue and Spruce Road. Your water is delivered to your home through 57 miles of water main and stored in two 1.0 million gallon storage tanks. The Pondville Tank is located off Sharon Avenue and the Weeber Tank is located off Meetinghouse Road behind Town Hall. In addition, the Town of Norfolk maintains permanent interconnections with the Town of Wrentham, the Wrentham Development Center, the Town of Franklin, and MCI Norfolk. Additional emergency interconnections are maintained with the Town's of Walpole and Medfield.

### **Water Treatment:**

In order to meet state and federal requirements for public drinking water, our source water receives treatment before it is supplied to our customers. The pH of the water is increased with potassium hydroxide to reduce its corrosiveness in household plumbing. Water from the Spruce Road Well is disinfected with a state-of-the-art UV (ultraviolet light) system; a chlorination system is available on an emergency basis. A polyphosphate is added to the Spruce Road Well to sequester iron and manganese, as well as coat the water mains to assist with corrosion control. Aeration removes dissolved CO<sup>2</sup> thus raising pH and reducing radon. Testing throughout the water system has shown that this treatment has been effective at reducing lead and copper concentrations. All chemicals used for corrosion control are approved for water treatment by one or more of the following organizations: National Sanitation Foundation (NSF International), or UL, both accredited by the American National Standards Institute (ANSI). Chemicals also have to meet performance standards established by the American Water Works Association.

**WATER QUALITY SUMMARY:** Although we ran hundreds of tests, we only listed the substances that were at or above detection limits. Unless otherwise noted, sample dates are for the year 2007 or within 5 years if we were not required to test in 2007 for previously detected contaminants.

Contaminant Level	Date Tested	Unit	MCL	MCLG	Highest Detected Level	Range	Major Sources	Violation
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**Radioactive Contaminants:**

Gross Alpha Activity	2007	pCi/L	15	0	1.6	0.3 – 1.6	Erosion of natural deposits	NO
Radon	6/11/07	pCi/L			680	n/a	Naturally occurring gas produced by the breakdown of uranium rock and water	NO
Radium 226	2007	pCi/L	5	n/a	1.9	0 – 1.9	Naturally occurring gas produced by the breakdown of uranium, rock and water	NO
Radium 228	2007	pCi/L	5	n/a	2.4	18 – 2.4	Naturally occurring gas produced by the breakdown of uranium, rock and water	NO

**Microbiological Contaminants:**

Total Coliform Bacteria	Monthly	TC/100 ml	0	0	0	0	Naturally present in the environment	NO
Fecal Coliform or Ecoli	Monthly	TC/100 ml	0	0	0	0	Human and animal fecal waste	NO

**Inorganic Contaminants (Regulated):**

Barium	5/19/03	ppb	2	2	.004	n/a	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	NO
Nitrate/Spruce Road	6/7/07	ppm	10	10	2.0	n/a	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits	NO
Nitrate/Gold Street	6/7/07	ppm	10	10	2.3	n/a	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits	NO

**Inorganic Contaminants (Unregulated):** Unregulated contaminants are those which the 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.

Contaminant Level	Date Tested	Unit	SMCL	ORSG	Highest Detect Level	Range	Major Sources	Violation
Sodium (Spruce Road)	8/25/06	ppm	250	20	37	n/a	Road salting; erosion of natural deposits	NO
Sodium Gold Street)	8/25/06	ppm	250	20	11	n/a	Road salting; erosion of natural deposits	NO
Sodium (Strawberry Ln)	11/2/06	ppm	250	20	33	n/a	Road salting; erosion of natural deposits	NO

**LEAD & COPPER:** (Tap water samples were collected from 25 approved sites (20 homes, 2 daycares and 3 schools) in the service area.

SUBSTANCE (UNITS)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90 <sup>th</sup> PERCENTILE)	NUMBER OF SITES ABOVE AL	VIOLATION	TYPICAL SOURCE OF CONTAMINATION
Lead (ppb)	9/25/07	15	0	0.003	0	NO	Corrosion of household plumbing systems
Copper (ppm)	9/25/07	1.3	1.3	0.281	0	NO	Corrosion of household plumbing systems

**Is Our Water Safe for Everyone?**

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 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).”

## Terms and Abbreviations used in the Table:

**AL** = Action Level – The concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system must follow.

**MCL** = Maximum Contaminant Level – The highest level of a contaminant in drinking water. MCLs are set as close to the MCLGs (see below) 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 expected risk to health. MCLGs allow for a margin of safety.

**SMCL** = Secondary Maximum Contaminant Level – These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

**ORSG** = Massachusetts Office of Research and Standards Guideline – This is the concentration of a chemical in drinking water, at or below which, adverse, non-cancer health effects are likely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.

**pCi/l** = Picocuries per liter (measure of radioactivity)

**ppm** = Parts per million (equivalent to one penny to \$10,000.)

**ppb** = Parts per billion (equivalent to one penny in \$10,000,000.)

**n/a** = Not Applicable

**Total Coliform** = A bacteria that indicates other potentially harmful bacteria may be present.

**90<sup>th</sup> Percentile** = Represents the highest value found out of 90 percent of the samples taken in a representative group. Nine out of every 10 homes sampled were at or below this level.

**Radon** is a radioactive gas that you cannot see, taste, taste, or smell. It is found throughout the United States. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will be (in most cases) a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may cause increased risk of stomach cancer. If you are concerned about radon in you home, test the air in you home. Testing is inexpensive and easy. Fix you home if the level of radon in your air is 4 Picocuries per liter of air (pCi/L) or higher. There are simple ways to fix a radon problem that aren't too costly. For additional information, a=call you State radon program or call EPA's Radon Hotline at 800-SOS-RADON.

## **Contamination from Cross Connection:**

Cross-connections that could 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).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that lay on the ground may be contaminated by fertilizers, cesspools or garden chemicals. We recommend the installation of hose bibb type vacuum breakers on all outside spigots. This will protect you, the homeowner, against the potential cross connection contamination of your outside garden hose.

Community water supplies are continually jeopardized by cross-connection unless appropriate valves, know as backflow prevention devices, are installed and maintained. We surveyed all industrial, commercial and institutional facilities in the service area to insure that all potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test each backflow preventer to ensure that it is providing maximum protection

## **SWAP (Source Water Assessment and Protection):**

The Massachusetts DEP has prepared a Source Water Assessment Program (SWAP) Report for Norfolk DPW. The report assesses the susceptibility of public water supplies to contamination and makes recommendations. This report is available from Whitewater, Inc. located at 253B Worcester Road, Charlton, MA, Norfolk DPW, Board of Health and also at the DEP website:

[www.state.ma.us/dep/brp/dws/](http://www.state.ma.us/dep/brp/dws/).

A susceptibility ranking of **high** was assigned to both wells in our system by the DEP due to the absence of hydro-geologic barriers (i.e. clay). Both Spruce Road and Gold Street wells are gravel-packed and presently meet all US Environmental Protection Agency (EPA) and MA DEP drinking water quality standards.

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 (400 ft) and a Zone II protection area. Zone I is owned and controlled by the Norfolk DPW and limited to only water supply activities. Zone II is defined as the primary recharge area for each well. To ensure wellhead protection, all construction plans in Norfolk are reviewed by the DPW with emphasis given to those in close proximity to Zone II.

In concert with its certified operator, Whitewater, Inc., the Norfolk DPW is addressing the concerns as stated in the SWAP Report and welcomes your input to our planning. If you have any questions, please contact Remo R. Vito, Jr., Director of Public Works at (508) 528-4990.

### **Sources of Drinking Water and Drinking Water Contaminants:**

The sources of drinking water in the United States (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, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants**, such as salts and metals can be naturally-occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and farming.
- **Pesticides and herbicides**, may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- **Organic chemical contaminants**, include synthetic and volatile organic chemicals that 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** can be naturally occurring or be the result of oil and gas production, and mining activities.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contamination. 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 (1-800-426-4791) or the Massachusetts Department of Environmental Protection (DEP) 617-292-5885. [www.state.ma.us/dep](http://www.state.ma.us/dep)

### **Department of Public Works Contact Information:**

The Norfolk water system is operated and maintained by the Department of Public Works, Water Division. If you have any questions about this report, please contact: Remo R. Vito, Jr., Director of Public Works at 508-528-4990.

Department of Public Works, 33 Medway Branch Road, Norfolk, MA 02056; office hours are Monday through Friday; 7:00 am to 3:30 pm; 508-528-4990. For water problems outside of normal hours, please contact the Norfolk Police Department at 508-528-3206 and one of our representatives will contact you immediately.