

Newburyport Water Works

Annual Water Quality Report to Our Customers

January 1, 2009 - December 31, 2009

Important Information about Your Drinking Water

If you have questions about this report, call the water treatment plant at (978) 465-4466 or send an e-mail to "pcolby@cityofnewburyport.com".

Quality of Your Drinking Water

Federal regulations require that we report to you each year about the quality of our drinking water. The Newburyport Water Works (Public Water Supply No. 3206000) is committed to providing our customers with high quality drinking water. To ensure delivery of a quality product, we have made significant investments in treatment facilities, water quality monitoring, source protection and the distribution system. We are pleased to report the results of our 2009 water-testing program. In addition to water quality test results, this report provides information about the water system such as where your water comes from and how it is treated.

Water Quality Testing

The Newburyport water treatment plant operates 24 hours per day, 365 days per year. The plant is staffed by trained personnel who have taken required drinking water examinations and have been certified by the State as operators of drinking water facilities. Each year Newburyport Water Works, along with state certified laboratories, conduct thousands of tests to monitor water quality and look for more than 120 potential contaminants.

Where Your Drinking Water Comes From

Our drinking water comes from both surface water and groundwater supplies. The surface supplies, which make up 80% of our water, are the Indian Hill Reservoir in West Newbury, the Artichoke Reservoir in both West Newbury and Newburyport, and the Bartlett Spring Pond in Newburyport. Surface water is treated at the water treatment plant where color, turbidity and bacteria are removed through filtration. The water is then treated for corrosion control, pH adjustment, disinfection and fluoridation before delivery to our customers. Groundwater, which makes up 20% of our drinking water, is supplied by two gravel packed wells (Well #1 and Well #2) located along Ferry Road in Newburyport.

Source Water Assessment Program

The Department of Environmental Protection (DEP) prepared a Source Water Assessment Program (SWAP) Report for the water supply sources serving this water system. This report notes the key land uses within the water supply protection areas for each source and the potential contamination from these land uses. The watersheds for our sources are primarily of a mixture of residential, agricultural, recreational and forestland. The City of Newburyport has enacted a resource protection ordinance to protect our water supplies.

Additionally, the City has developed a surface water supply protection plan to help monitor and preserve our surface water sources. Residents can help protect the water sources by being careful in the use and storage of hazardous materials such as paints, solvents, pesticides and fertilizers. The complete SWAP report is available at the Newburyport water treatment plant, Newburyport Board of Health or online at www.state.ma.us/dep/brp/dws/. For more information, contact Paul Colby at (978) 465-4466.

Water Treatment Processes

In order to meet state and federal requirements for public drinking water, our drinking waters receive the following physical and chemical treatments before being supplied to our customers:

SURFACE WATER

- Pretreatment chemicals are added to coagulate impurities that are then settled out in larger sedimentation tanks.
- Water is then filtered through two 40-inch deep mixed media filters to removed particles.
- Chlorine is added to disinfect water to prevent waterborne diseases.
- The pH of the water is raised to reduce the acidity of the water, helping to prevent internal plumbing corrosion.
- A corrosion inhibitor is used to minimize the pickup of lead and copper from household plumbing into the tap water.
- Sodium fluoride is added to help prevent tooth decay.

WELL WATER

The well water does not require pretreatment chemicals for coagulation or filtration. It is however treated with chlorine, fluoride, corrosion inhibitor and pH adjustment.

Vulnerability

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/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).

Water Conservation

By far the most common cause of unexpected high water bills are leaks in home toilets or from excessive outdoor water use. Most toilet leaks aren't easily seen and can't be heard. A leaky toilet may cost you as much as \$200 extra on your water bill (not to mention your sewer bill). The quickest way to detect a leaking toilet is to place drops of food coloring into the toilet tank and see if the color comes into the bowl. If color comes into the bowl, this is an indication that your toilet is leaking water. We have both indoor and outdoor water conservation kits available for about \$7.00.

Things You Can Do To Conserve Water Inside

- Turn off the faucet while you brush your teeth, shave, or clean fruits or vegetables.
- Take shorter showers.
- Don't use your toilet as a waste basket.
- Run the dishwasher and washing machine only when you have a full load.
- Fix leaking faucets and toilets.

Things You Can Do To Conserve Water Outside

- Outfit garden hoses with shut-off nozzles.
- Water your lawn and garden only when needed.
- Water when evaporation rates are at the lowest, during the cool period of the day, first thing in the morning.
- Check for and fix any leaks in outdoor hoses, pipes, faucets and connections.
- Plant drought-tolerant trees and shrubs.
- Do not use automatic timed lawn sprinklers, turn them on and off by hand.

Substances Found in Your Tap Water

Drinking water, including bottled water, may be reasonably expected to contain at least some small amounts of certain substances which EPA calls "contaminants". The presence of these substances does not necessarily indicate that the water poses a health risk. For example, as water travels over the surface of the land or through the ground, it can dissolve naturally occurring minerals. More information about the substances found in your water and their potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Contaminants that May Be Present in Source Waters

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 stormwater runoff, industrial or domestic wastewater discharge, oil and gas production, mining and farming.

Pesticides and herbicides, which may come from a variety of sources such as agricultural, urban stormwater runoff, and residential use.

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, the DEP 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 Massachusetts department of Public Health (DPH) regulations establishing limits for contaminants in bottled water that must provide the same protection for public health.

Lead in Drinking Water

If present, elevated levels of lead can cause serious health problems, especially for pregnant woman and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Newburyport Water Works is 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 drinking 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>.

Cryptosporidium

Cryptosporidium is a microbial parasite found in surface water throughout the U.S. Although filtration removes Cryptosporidium, the most commonly used filtration methods cannot guarantee 100% removal. Our monitoring indicates the presence of these organisms in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea and abdominal cramps.

Most health individuals are able to overcome the disease within a few weeks. However, immuno-compromised people have more difficulty and are at greater risk of developing severe, life-threatening illness. Immuno-compromised individuals are encouraged to consult their doctors regarding appropriate precautions to prevent infection. Cryptosporidium must be ingested for it to cause disease, and may be passed through other means than drinking water.

EPA required public water systems using surface water to conduct sampling for Cryptosporidium in source waters. This sampling is used to determine if additional treatment will be necessary to provide protection from microbials. Systems are placed in one of four categories (bins) based on their microbial results. The Newburyport Water Works has been placed in the lowest bin, meaning that no additional treatment will be required

Sampling conducted for a 2 year period ending in March 2009 (48 total samples collected) showed the presence of a single Cryptosporidium oocyst/L in one sample collected. All of the remaining samples were negative. These sample results are the reason for the placement of our water system in the lowest bin classification.

Water Quality Monitoring

Below is a list of regulated substances detected in your drinking water.

Substance	MCL	MCLG	Highest Level Detect	Range	Major Sources in Drinking Water
Fluoride (ppm)	4	4	1.49	0.54 - 1.49	Water additive which promotes strong teeth
Sodium (ppm)	None	None set	47	23 - 47	Naturally occurring deposits, road salts, water treatment chemicals.
Nitrate (ppm)	10	10	1.9	0.38 - 1.9	Runoff from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits.
Gross Alpha Activity(pCi/L)	15	0	1.6	1.6	Erosion of natural deposits
Turbidity (NTU)	TT = 5.0 max	0	0.18	0.03 - 0.18	Soil runoff
	TT<0.3 in 95% of the samples	0	Not Applicable		
Cryptosporidium	TT = 99.9% removal / inactivation	0	1	0 - 1	Discharge especially where water is contaminated with sewerage or animal waste

Trihalomethane and Haloacetic Acid from distribution system sampling.

Substance	MCL	MCLG	Running Annual Ave.	Range	Major Sources in Drinking Water
Total Trihalomethanes (ppb)	80	0	39.9	14 - 84	By-product of drinking water chlorination
Haloacetic Acids (ppb)	60	0	19.6	1.3 - 33.2	By-product of drinking water chlorination

Lead and Copper testing at the customer's home. (Sampling conducted in 2009)

Substance	Action Level	MCLG	90th Percentile	Range	Major Source in Drinking Water
Lead (ppb)	15	0	3	0 - 5	Corrosion of household plumbing systems, erosion of natural deposits.
Copper (ppm)	1.3	0	0.2	0.02 - 0.65	Corrosion of household plumbing systems, erosion of natural deposits, leaching of wood preservatives.

Table Key

ppm - Parts per million; one part per million is equivalent to \$.01 in \$10,000.
ppb - Parts per billion; one part per billion is equivalent to \$.01 in \$10,000,000.
MCL - Maximum Contaminant Level; the highest level of contaminant that is allowed in drinking water.
MCLG - Maximum Contaminant Level Goal; the level of a substance in drinking water below which there is no known health effects. MCLGs allow for a margin of safety.
Turbidity - Turbidity is a measurement of the cloudiness of the water. Low NTUs are a good indicator of the effectiveness of our filtration process.
NTU - Nephelometric Turbidity Units; a measure of the presence of particles in drinking water. Low NTUs is an indicator of high quality water.
TT - Treatment Technique; a required process intended to reduce the level of a contaminant in drinking water.
Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
pCi/L - Picocuries per liter (a measure of radiation)

Frequently Asked Questions

What is the pH of Newburyport water? The average pH of the water in Newburyport's distribution system is 7.4.

Why does the water sometimes look milky white? This usually indicates air in the water pipes. This is most common in winter months when air is released from cold water setting in the warmer pipes within your home.

Is Newburyport's water soft or hard? Newburyport's water is soft. The water will average 40 – 50 mg/L of hardness (2.3 – 2.9 grains per gallon).

What causes discolored water from my tap? Water main breaks, fire hydrant flushing or other disruptions of flow in the distribution system may cause temporary discoloration of water.

Does Newburyport add fluoride to the water? Yes, Newburyport does add fluoride to the water in correct amounts for dental health benefits.

A cross connection is a direct arrangement of a piping line, which allows the potable water supply to be in contact with a contaminant. Contamination is possible from either back-siphonage or backpressure. The most common residential cross connections are from items such as a lawn irrigation system or garden hoses connected to a hand held fertilizer sprayer or left laying in a pool or other contamination source.

The Newburyport Water Works has an active cross connection control program that is directed towards its commercial, industrial and institutional users to prevent the existence of unprotected cross connections. If residential users are concerned with the possibility that they may have cross connections in their homes, they are welcome to contact the Newburyport Water Works at (978)465-4466 for more information.

COMPLETED AND ONGOING WATER SYSTEM IMPROVEMENTS

WATER METER REPLACEMENT PROJECT:

During 2009 the DPS Water Division completed the replacement of almost all of its water meters with new "radio read" meters. The new radio read meter system will allow for the reading of your water meter without entering the home. It will allow for a much more efficient method of reading meters and tracking water use.

GUILFORD WELL SITE:

In the City's ongoing search for additional drinking water sources we have been investigating a potential new well site in the south end of the City. This is a parcel the City purchased from the Guilford Transportation Company, located between High Street and Parker Street, near the Marches Hill water tank. A pump test was conducted on this well site during 2008. The City continues to investigate how to best utilize this site as a water source.

EMERGENCY CLEARWELL REPAIRS:

Emergency repairs were made to the water treatment plants clearwell (500,000 gallon underground storage tank). This concrete tank was originally constructed in the 1930's and required immediate attention to support and prevent leakage. It will be evaluated for replacement under the WTP evaluations that are taking place.

WTP EVALUATION:

The DPS Water Division continued evaluation process for the existing water treatment plant, clearwell and finish water pump station. These are the components required to treat and pump drinking water to our customers. The finish water pump station and the clearwell were constructed in the early 1900s and are in desperate need of upgrading or replacement. The water treatment plant is currently operating at full capacity during peak summer days. We are evaluating the existing processes of the water treatment plant, along with alternate processes, to ensure we can meet the future demands of the City. Once the evaluation is completed a recommendation as to what improvements are necessary will be determined by the Board of Water Commissioners.

WATER COMMISSIONERS

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Erford Fowler

Paul F. Colby, Superintendent

WTP

Norman Colby Jr.
Joseph Grande
Mark Collyer
Thomas Hegarty
Christopher Hood
William Koppana
Thomas Smolski

P.O. Box 550
Newburyport, MA 01950

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