

ANNUAL  
WATER  
QUALITY  
REPORT

*Water testing performed in 2008*



PWSID#: 2151000

This report was prepared by:  
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## Continuing Our Commitment

We are proud to present to you our annual water quality report. This edition covers testing completed from January 1 through December 31, 2008. We have dedicated ourselves to producing drinking water that meets state and federal drinking water standards. We strive to adopt new and better methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation and community education while continuing to serve the needs of our water users.

Please share your thoughts about the information in this report.

For more information about this report, or for any questions relating to your drinking water, please call Frank W. Lyon, Water Superintendent, at (508)892-8484.

## Community Participation

Do you want to learn more about your drinking water or have questions about the information in this report, please contact Frank W. Lyon, Superintendent of the Leicester Water Supply District at (508) 892-8484 or you stop by the office at 124 Pine Street Monday through Friday between 9:00 AM and 2:00 PM.

You are invited to voice your concerns about your drinking water at the monthly Commissioners Meetings. We meet the 2nd Thursdays of each month beginning at 4:30 p.m. at the office of the District, 124 Pine Street, Leicester Ma.

The Public is welcome to attend these meetings as well as the Annual Meeting, held on the last Tuesday in April. Please call in advance to confirm the date and time.

## Where Does My Water Come From?

The Leicester Water Supply District is a Municipal Water System that provides water to about 3,300 residents in the central area of Leicester. The water that we distribute is groundwater, water that is pumped from aquifers in the bedrock. The sources include two areas: a well field in the Town of Paxton (source ID # 01G, 02G, 03G and 04G) and two wells in Leicester, the Whittemore Street Well (05G) and the Rawson Street Well (06G). The Whittemore Street well is currently out of service until treatment for arsenic and uranium can be provided. Two water tanks (600,000 gallons each) located just north off Rt 56 near the Leicester High and Leicester Primary Schools provide storage and delivers water through our distribution system to your homes and business.

## Tap vs. Bottled

Thanks in part to aggressive marketing, the bottled water industry has successfully convinced us all that water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council, bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25 percent of bottled water is actually just bottled tap water (40 percent according to government estimates).

The Food and Drug Administration is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children. Further, the FDA completely exempts bottled water that's packaged and sold within the same state, which accounts for about 70 percent of all bottled water sold in the United States.

People spend 10,000 times more per gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to \$1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you'd pay for bottled water.

For a detailed discussion on the NRDC study results, check out their Web site at [www.nrdc.org/water/drinking/bw/exesum.asp](http://www.nrdc.org/water/drinking/bw/exesum.asp).

## 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) prescribes regulations limiting 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 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.

## Water Treatment Process

Arsenic Treatment #2 and #3 wells.

The treatment process consists pumping raw water from these wells to two treatment skids each of which has two pressurized vessels. The vessels contain a specialized resin media that absorbs the arsenic producing an arsenic free water. The water then flows into the transmission system in Paxton to the water tanks on Cary Hill in Leicester for distribution. The media in these vessels will be periodically cleaned by removing the media and regenerating off site and returned to the vessels.

Jim Dandy well (04G) in Paxton is a shallow water well considered as a ground water supply influenced by surface water.

Water is pumped from the well through a series of three membrane filters of different Micron sizes to remove possible contaminants. The water is chlorinated at the source and flows into the transmission system. Turbidity is also measured and recorded to insure the water quality standards meet the Safe Drinking Water Acts (SDWA). Chlorine is added at the Jim Dandy well as a precaution against any bacteria that may be present.

Your water is also treated for corrosion control with a blend of polyphosphate products that reduce the amount of copper and lead that leaches from your in-house plumbing at the water tanks and the #5 Rawson Street well.

## Radon

Radon samples for Rawson St. 06G well were taken on 5/7/2008. The results were 8800 pCi/L, which is less than the RMA guideline of 10,000 pCi/L.

Radon is a radioactive gas that occurs naturally in some ground water. It may pose a health risk when the gas is released from water into air, as occurs during showering, bathing, or washing dishes and clothes. Radon gas released from drinking water is a relatively small part of the total radon in air. Radon is released into homes and ground water from soil. Inhalation of radon gas has been linked to lung cancer, however, the effects of radon ingested in drinking water are not yet clear. If you are concerned about radon in your home, tests are available to determine the total exposure level. For additional information on how to have your home tested, call (800) SOS-RADON.



## Water Conservation

You can play a role in conserving water and saving yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.

Turn off the tap when brushing your teeth.

Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.

Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.

Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

## What's a Cross-connection?

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 are left lying on the ground may be contaminated by fertilizers, cesspools or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. For more information, review the Cross-Connection Control Manual from the U.S. EPA's Web site at [www.epa.gov/safewater/crossconnection.html](http://www.epa.gov/safewater/crossconnection.html). You can also call the Safe Drinking Water Hotline at (800) 426-4791.

## 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).

## Source Water Assessment

A Source Water Assessment Plan (SWAP) is available at our office. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area, and a determination of the water supply's susceptibility to contamination by the identified potential sources.

If you would like to review the Source Water Assessment Plan, please feel free to contact our office during regular office hours.

## MCL Exceedance

Public notice of these occurrences were distributed by mail quarterly: January 1 through September 30, 2008: MassDEP approved water treatment systems for the removal of arsenic for Wells #2 and #3 which was activated on October 2, 2008. Test results show that there are no detections of arsenic in the water provided to consumers from these wells since the activation of the treatment systems.

Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

## 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.

## Missed Monitoring

The District failed to meet minimum distribution system residual disinfection requirements for the sample period of September-October and October- November 2008. If no residual is detected, as in this case, Heterotrophic Plate Count (HPC) samples must be collected and analyzed at all collection sites. The District failed to collect and analyze HPC at one out of four (25%) in October, November and December. We do not believe that missing this monitoring requirement had any impact on public health and safety. We have taken steps to ensure that adequate monitoring and reporting will be performed in the future so that this oversight will not be repeated.

## Naturally Occurring Bacteria

The simple fact is, bacteria and other microorganisms inhabit our world. They can be found all around us: in our food; on our skin; in our bodies; and, in the air, soil, and water. Some are harmful to us and some are not. Coliform bacteria are common in the environment and are generally not harmful themselves. The presence of this bacterial form in drinking water is a concern because it indicates that the water may be contaminated with other organisms that can cause disease. Throughout the year, we tested many water samples for coliform bacteria. In that time, none of the samples came back positive for the bacteria.

## Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any contaminants. The table below shows only those contaminants that were detected in the water. The state allows 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]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
<b>Arsenic</b> (ppb)	2008	10	0	17	1–20	Yes	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
<b>Alpha Emitters</b> (pCi/L)	2008	15	0	7.6	2.5–7.6	No	Erosion of natural deposits
<b>Combined Radium</b> (pCi/L)	2008	5	0	2.5	NA	No	Erosion of natural deposits
<b>Nitrate</b> (ppm)	2008	10	10	4.4	0.161–4.4	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
<b>Total Organic Carbon</b> (ppm)	2008	TT	NA	0.0094	0.0067–0.0094	No	Naturally present in the environment
<b>Uranium</b> (ppb)	2008	30	0	18	3.1–18	No	Erosion of natural deposits
Tap water samples were collected for lead and copper analyses from sample sites throughout the community <sup>1</sup>							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE
<b>Copper</b> (ppm)	2007	1.3	1.3	0.3	0/10	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
<b>Lead</b> (ppb)	2007	15	0	2	0/10	No	Corrosion of household plumbing systems; Erosion of natural deposits
UNREGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE			
<b>Sodium</b> (ppm)	2008	35	ND–35	Naturally occurring			

<sup>1</sup> Consistently low values for lead and copper have earned a reduction in DEP required testing for Leicester Water Supply District for this category. The frequency of testing for lead and copper is now once every three years. The next scheduled monitoring for this category is in Qtr 3, 2010.

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 U.S. EPA in determining their occurrence in drinking water and whether future regulation is warranted.

## 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.

**pCi/L (picocuries per liter):** A measure of radioactivity.

**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).

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