

Annual Water Quality Report 2009

TOWN OF LINCOLN, MASSACHUSETTS

Introduction

This Report describes Lincoln's drinking water sources, treated water quality, and how we maintain the high quality of your water. This report is issued annually to you, the consumer, to keep you updated on your drinking water quality. The report also provides information on where your water comes from, how we treat it, and answers to questions you may have about Lincoln's water system. We are proud to report that the water provided by the Lincoln Water Department (LWD) meets or exceeds established water-quality standards set forth by the U.S. Environmental Protection Agency (USEPA) and the Massachusetts Department of Environmental Protection (MaDEP).

Lincoln's Drinking Water - A Well-Protected Source

The Town of Lincoln is supplied by both surface water and groundwater wells. Flint's Pond, also known as Sandy Pond, is the primary year-round supply. Tower Road Well is a supplemental source used during peak periods and when Flint's pond is off-line for servicing.

Since 1896, when the system was known as the Lincoln Water Works, the Town has recognized the need to protect its watershed. The watershed consists of 465 acres of land surrounding Flint's Pond, which is approximately 92 percent owned and/or controlled by the Town. The Town has in place a Watershed Protection Plan designed to limit access to the water and protect the land from any development that would endanger the water supply. One of the biggest threats to the Town's water supply is improperly maintained septic systems. You can help protect your drinking water quality by pumping out your septic system every two years. Never dump hazardous substances down septic or storm drains. Do not use septic system cleaners.

Lincoln buys and/or sells approximately two percent of its water to the Towns of Concord and Weston. This arrangement accommodates the best interest of the respective distribution systems for Lincoln and Weston. We also have standby agreements with the Towns of Wayland and Lexington in the event of an emergency.

Source Water Assessment Program

The Source Water Assessment & Protection (SWAP) Program, established under the federal Safe Drinking Water Act, requires every state to: inventory land uses within the recharge areas of all public water supply sources; assess the susceptibility of drinking water sources to contamination from these land uses; and publicize the results to provide support for improved protection. A susceptibility ranking of moderate for Flint's Pond and ranking of high for Tower Road well were assigned using the information collected during the assessment by MaDEP. You can download a copy of the SWAP Report from www.mass.gov/dep/water/drinking/swapreps.htm or call the LWD at (781) 259-8997.

For Your Health

In order to ensure that tap water is safe to drink, MaDEP and USEPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration and the Massachusetts Department of Public Health regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Regulated contaminants are those substances which the USEPA has established drinking water standards to protect human health. Unregulated contaminants are those for which USEPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist USEPA in determining their occurrence in drinking water and whether future regulation is warranted.

Information About Drinking Water

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. However, some people may be more vulnerable to contaminants 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 provider. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

The sources of drinking water generally include rivers, lakes, streams, ponds, reservoirs, springs and wells. Because water is the universal solvent, 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 as it travels over the surface of the land or through the ground. Contaminants that can be present include:

- *Microbial contaminants*, such as viruses and bacteria, which may come from septic systems 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.
- *Pesticides and herbicides*, which may come from a variety of sources such as agriculture, urban storm water runoff and residential uses.
- *Radioactive contaminants*, may be naturally occurring or be the result of oil and gas production and mining activities.

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

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. LWD 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 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>.

How Can I Learn More?

LWD's Superintendent, Gregory Woods, and staff are available **Monday - Friday**, from **7:00 A.M. - 3:30 P.M.**, to answer questions and provide assistance at the following telephone numbers: **(781) 259-8997** and **(781) 259-1329**. You can also check the Town's website at <http://www.lincolntown.org>. Lincoln's Public Water System I.D. # is: **3157000**.

Water Rates

\$5.07 per 1,000 gallons for usage under 48,000 gallons.

\$7.79 per 1,000 gallons for usage over 48,000 gallons (up to 90,000 gallons).

\$16.68 per 1,000 gallons for usage over 90,000 gallons.

\$16.68 per 1,000 gallons for **ALL irrigation only** meters.

Rates based on a semiannual billing period.

Base Charge + Usage = Total Amount Due

Mandatory Water Use Restriction

LWD would like to notify its customers that the MaDEP, through its Water Management Act permitting process, has imposed limits on the amount of water towns are allowed to withdrawal from their respective watersheds. Lincoln's permit was issued in February, 2010 and includes a drastic reduction in our water allocation starting in 2014. However, the State has also required that the Town reduce individual water consumption to the 65 gallons per person per day performance standard by December 31, 2011. For the 2008 calendar year, Lincoln's consumption was 76 gallons per capita day. Lincoln will have to take significant steps to reduce our use and meet this standard.

The Town experiences excessively high water demands during the summer months, primarily due to lawn watering activities. While the Department would like to encourage healthy lawns, it is also responsible for ensuring compliance with the State regulatory agencies. As a result of this new permit, the Town must implement a **mandatory** outdoor water conservation measure from May 1st through September 30th. The permit stipulates nonessential outdoor watering must be limited to no more than two times per week.

The water conservation restriction will consist of an odd/even water schedule for all nonessential outdoor watering. House addresses that end with an even number may water on Tuesday and/or Thursday. Houses addresses that end with an odd number may water on Wednesday and/or Friday. There will be no nonessential outdoor watering Saturday, Sunday or Monday. Watering will not be permitted on any day between 7 AM and 7 PM; thus it is allowed only in the late evenings and early mornings. Hand held watering with a hose or bucket is allowed.

According to the Massachusetts Cooperative Extension System, healthy lawns require only one inch of water weekly, either from rain or irrigation or a combination of both. Watering a lawn lightly on a frequent basis, rather than a deep water once per week, encourages shallow rooting and crabgrass growth while making the lawn more susceptible to drought injury. Watering during the day on sunny or hot days results in the evaporation

of water which then does not reach the root systems sufficiently.

Please consult your sprinkler system's owners manual or contact a sprinkler company to correctly program you automatic sprinkler controller. LWD staff will be monitoring sprinkler use in Town and will stop to remind residents of the new restriction policy. A second notice will result in a \$50 fine, and subsequent violations will result in a \$100 fine.

Conservation Tips

- Install an electronic moisture sensor on your sprinkler system.
- Water only once or twice a week.
- Run your washing machine only when full.
- Run your dish washer only when full.
- Check for and fix leaks in outdoor hoses and pipes.
- Read your meter frequently to determine your typical daily usage.

Using too much water? Call the LWD to schedule a **Free Water Audit** of your home.

Water Treatment

The original Sandy Pond Treatment Plant was constructed in 1993 to disinfect the raw water prior to delivery to the residents of Lincoln. The installation of a Siemens micro-filtration membrane plant in 2003 both increased the quality of the treated water and further safeguarded the residents from such microorganisms as bacteria and viruses. This year, LWD replaced the micro-filtration membranes with newer cartridges that provide an even greater level of filtration while reducing energy costs associated with operating the treatment plant.

Depending on the source location, LWD adds a very low concentration of either potassium hydroxide or sodium hydroxide to the drinking water in order to increase the pH of the water and reduce its natural corrosiveness. Chlorine is added as a disinfectant at the Flint's Pond facility and fluoride is added at both the treatment plant and the Tower Road well to aid in dental health and hygiene. Zinc orthophosphate is also added at both sites for corrosion control and to reduce levels of iron and manganese.

Water Quality Data

Data presented in this table is for testing completed during the 2009 calendar year. We monitor for some contaminants less than once per year, because the concentrations for those contaminants are not expected to vary significantly from year to year. In these cases, the most recent sample information and the year the sample was collected, are included in the table.

Regulated Contaminants							
Substance	Sample Date	MCLG/ MRDLG	MCL/ MRDL	Highest Detected or Running Average	Range Detected	Violation	Possible Source(s) of Contamination
Nitrate (ppm)	2009	10	10	0.24	ND - 0.24	No	Runoff from fertilizer use; septic systems.
Turbidity (NTU)	2009	--	0.3	0.12	0.02 - 0.12	No	Natural sediment; soil runoff.
TTHMs (ppb)	2009	--	80	36.8	1.5 – 53.2	No	By-product of drinking water chlorination.
HAA5s (ppb)	2009	--	60	7.2	1.7 – 13.4	No	By-product of drinking water chlorination.
Fluoride (ppm)	2009	4	4	1.2	ND - 1.2	No	Erosion of natural deposits; water additive that promotes strong teeth.
Chlorine (ppm)	Monthly	4	4	0.89	0.04 – 0.89	No	Water additive used to control microbes.
Xylenes (ppm)	2009	--	10	0.009	ND – 0.009	No	Discharge from petroleum or plastics factories.
Unregulated Contaminants							
Substance	Sample Date	SMCL	ORSG	Highest Detected	Range Detected	Violation	Possible Source(s) of Contamination
Sodium (ppm)	2009	--	20	9.8	9.8	No	Widely present in natural waters.
Lead & Copper (Tap water was collected from homes in service area)							
Substance	Sample Date	MCLG	MCL/AL	No. of Sites Sampled	90th Percentile	Sites above AL	Possible Source(s) of Contamination
Lead (ppb)	2008	0	15	20	ND - 0.028	No	Corrosion of household plumbing systems.
Copper (ppm)	2008	1.3	1.3	20	0.026 - 0.233	No	Corrosion of household plumbing.
Bacteria Sampling							
Substance	Sample Date	MCLG	MCL/AL	Highest Number Positive in Routine Monthly Samples	Violation	Possible Source(s) of Contamination	
Total Coliform	2009	0	>1/mon.	0	No	Naturally present in the environment.	
Fecal Coliform or E.Coli	2009	0	**	0	No	Human or animal fecal waste.	
Definitions							
ppm	=	Parts per million, or milligrams per liter (mg/l)			NTU	=	Nephelometric Turbidity Units
ppb	=	Parts per billion, or micrograms per liter (ug/l)			MFL	=	Million of Fibers per Liter
ND	=	Not detected above laboratory method detection limits					
TTHM	=	Total Trihalomethanes			HAA5	=	Haloacetic acids
**	=	Compliance with fecal coliform/E.coli MCL is determined upon additional repeat testing					
MCL	=	Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to 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.					
AL	=	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements, which a system must follow.					
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.					
TT	=	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.					
ORSG	=	MA Office of Research and Standards Guideline: This is the concentration of a chemical in drinking water, at or below which, adverse health effects are unlikely to occur after chronic (lifetime) exposure. If exceeded, it serves as an indicator of the potential need for further action.					
90th Percentile	=	Out of every 10 homes, 9 were at or below this level.					