

Annual Water Quality Report 2017

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 (Mass DEP).

Lincoln's Drinking Water – A Well-Protected Source

The Town of Lincoln is supplied by both surface water and groundwater well. 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 1874, 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.

For Your Health

In order to ensure that tap water is safe to drink, Mass DEP 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 for 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.

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 Mass DEP. You can download a copy of the SWAP Report from www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3157000.pdf or call LWD at (781) 259-1329.

Information About Your 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, including EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants 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 want 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>.

Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. **Sodium** sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, should be aware of the sodium levels where exposures are being carefully controlled.

How Can I Learn More?

Water Department staff are available **Monday – Friday**, from **7:00 A.M. - 3:30 P.M.**, and at **(781) 259-1329**. Water Commission meetings are held on the 2nd Wednesday of each month at 4:30 P.M. at 77 Sandy Pond Road. You can also check the Town's website at <http://www.lincolntown.org>. Lincoln's Public Water System I.D. # is: **3157000**.

Water Rates

\$4.06 per 1,000 gal	for usage under 20,000 gal
8.57 per 1,000 gal	for usage over 20,000 gal.
\$20.02 per 1,000 gal	for usage over 40,000 gal
\$20.02 per 1,000 gal	for all irrigation only meters
Rates based on a quarterly billing period Base Charge + Usage = Total Amount Due Base charge = \$30 for water meter	

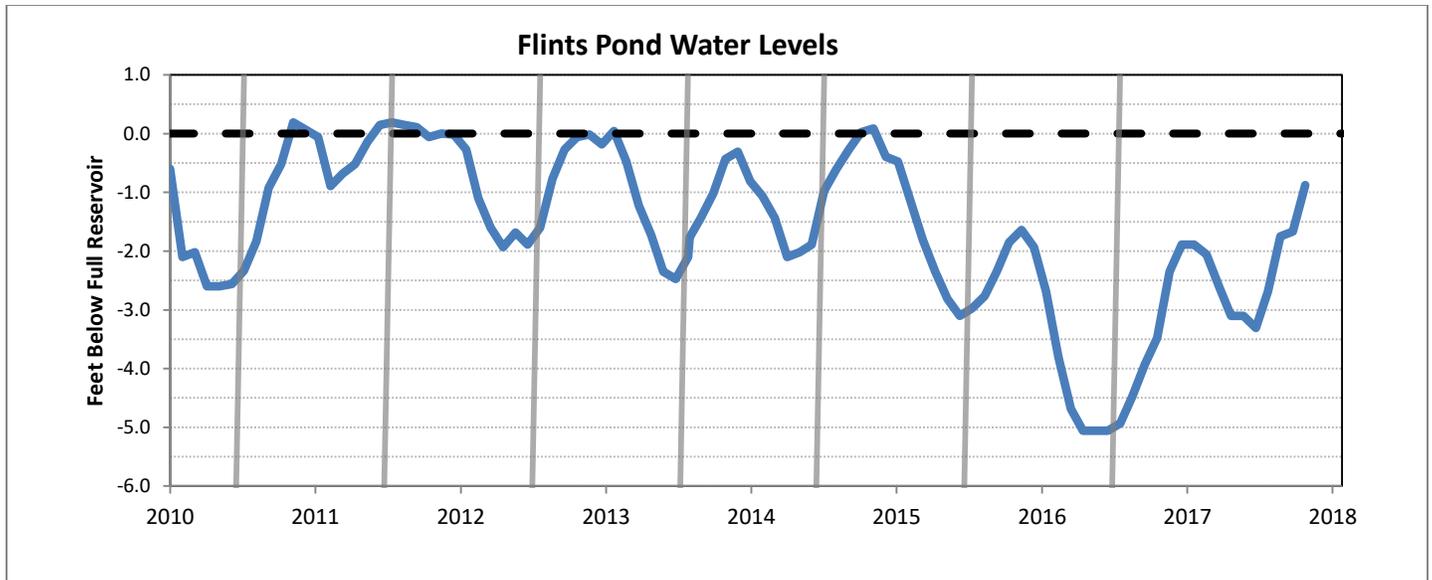
Mandatory Drought Restriction

The water level in Flint's Pond recovered by approximately three feet from its exceptionally low level the previous year. The Department maintained a mandatory outdoor water ban until May 10th, after which a one day per week schedule was implemented. The normal two days per week restriction was reinstated on August 9th as it was unlikely that the pond level would decrease significantly over the remainder of the year. As a result of the previous year's drought, the Department formalized a Drought Management Plan to help identify when more stringent watering restrictions should be instituted in order to safeguard the water supply.

The DEP issued the Town's current water withdrawal permit in 2013. There are two major permit provisions with respect to water consumption: that we achieve the state-wide goal of 65 gallons per person per day residential use, and that our total annual withdrawal, including non-residential users and unaccounted for (lost) water not exceed 182 million gallons per year. We have only achieved the residential water use goal twice in the last eight years, one of which was the result of the mandatory watering ban. This, in addition to our unaccounted for water amounts, means, we have yet to meet the total annual withdrawal limit.

The Department continued its aggressive efforts to reduce leaks in the mains and service lines in an effort to reach the DEP mandate of less than 10% unaccounted for or lost water. Using a new, more sensitive technology, we identified ten service line leaks and three water main leaks, all of which have been repaired. The estimated total leakage rate was estimated to be 93,600 gallons per day. The leak detection program will continue annually as we attempt to reduce our water use by minimizing lost water.

The Department is also working to inform residents about residential water conservation strategies. To encourage compliance with the DEP water usage guidelines, the LWD continued water conservation outreach, including education flyers, an on-going rebate program to residents toward the purchase of qualifying low flow toilets, washing machines and lawn irrigation moisture sensors and awarded rebates for three toilets and three washing machines. In 2016 we began to offer rebates for low-flow bathroom faucets as well. The LWD urges our customers to take advantage of these programs and to strive to reduce their water consumption.



Water Treatment

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 (reduce the acidity) of the water to 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.

The Lincoln Water Department (LWD) violated the drinking water regulations in Quarter four of 2017. This is not an emergency, but you have a right to know what has happened, what you should do and what LWD is doing to correct the situation.

LWD is required to monitor your drinking water on a quarterly basis at two (2) sites in the distribution system for the presence of disinfection byproducts (DBPs). The DBP test results from the last four (4) quarters that ended on September 30, 2017 show that Lincoln’s system exceeds the standards, or maximum contaminant levels (MCL) for total trihalomethane (THM). The MCL for THM is calculated based on locational running annual averages (LRAA) of samples collected the last four (4) quarters. The LRAA of TTHM at 1175 Lexington Road was at 0.083 milligrams per liter (mg/L). This value slightly exceeds the respective MCL for TTHM of 0.080 mg/L. Since that single exceedance, we have been in compliance with the standard.

What should I do?

You do not need to boil your water or take other corrective actions. If a situation arises where the water is no longer safe to drink, you will be notified within 24 hours. We will announce any emergencies on the local news stations as well as advertise in the Lincoln Journal. The Massachusetts Department of

Environmental Protection (Mass DEP) has advised us that there is not a need for our residents to use an alternate water supply. However, if you have specific health concerns, you should consult your doctor.

What does this mean?

This is not an emergency. If it had been you would have been notified within 24 hours. Some people who drink water containing trihalomethane in excess of the MCL over many years may experience problems with their liver, kidneys or central nervous system and may have an increased risk of getting cancer. There are no known short term acute impacts. You do not need to use an alternate water supply such as bottled water. However, if you have specific health concerns, please consult your doctor.

What happened? What is being done?

The risk of illness from TTHMs is much lower than the risk of illness from drinking water that has not been disinfected. Regardless, the Town is committed to addressing the exceedance of the TTHM limit. The Department is working with the Mass DEP to evaluate the water supply and research options to correct the problem. A more long-term approach will include the implementation of our consultant's recommendations to achieve compliance with the TTHM standards. As mentioned above we have been in compliance since the single exceedance last year.

Cross Connection Prevention

The purposes of this program are:

- To protect the public potable water supply from the possibility of contamination or pollution by isolating such contaminants or pollutants which could backflow or back-siphon into the public water system.
- To promote the elimination or control of existing cross connections, actual or potential between its customers potable water system, and non-potable systems.
- To provide for the maintenance of a continuing program of cross connection control which will effectively prevent the contamination or pollution of all potable water systems by cross connection. For information regarding our program please contact the Lincoln Water Department at 781-259-9887.

What you can do to help prevent a cross-connection: Without the proper protection something as simple as a garden hose has the potential to contaminate or pollute the drinking water lines in your house. In fact, over half of the country's cross-connection incidents involve unprotected garden hoses. There are very simple steps that you, as a drinking water user, can take to prevent such hazards:

- Never submerge a hose in soapy water buckets, pet watering containers, pool, tubs, sinks, drains, or chemicals.
- Never attached a hose to a garden sprayer without the proper backflow preventer.
- Buy and install a hose bibb vacuum breaker on every threaded water fixture. The installation can be as easy as attaching a garden hose to a spigot. This inexpensive device is available at most hardware stores and home-improvement centers.
- Identify and be aware of potential cross-connections to your water line.
- Buy appliances and equipment with a backflow preventer.
- Buy and install backflow prevention devices or assemblies for all high and moderate hazard connections

Water Quality Data

Data presented in this table is for testing completed during the 2017 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)	2017	10	10	0.67	ND-0.60	No	Runoff from fertilizer use; septic systems.
Turbidity (NTU)	2017	--	TT	0.23	0.02-0.23	No	Natural sediment; soil runoff.
TTHMs (ppb)	2017	--	80	83.0	ND-92.6	yes	By-product of drinking water chlorination.
HAA5s (ppb)	2017	--	60	27.3	ND-27.3	No	By-product of drinking water chlorination.
Fluoride (ppm)	2017	4	4	1.20	0.40-1.20	No	Erosion of natural deposits; water additive that promotes strong teeth.
Chlorine - Total (ppm)	Monthly	4	4	1.12	0.00-1.12	No	Water additive used to control microbes.

Unregulated Contaminants

Substance	Sample Date	SMCL	ORSG	Highest Detected	Range Detected	Violation	Possible Source(s) of Contamination
Sodium (ppm)	2016	--	20	24.3	9.5-24.3	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)	2017	0	15	20	2.0	0	Corrosion of household plumbing systems.
Copper (ppm)	2017	1.3	1.3	20	0.19	0	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	2017	0	>1/mon.	1	No	Naturally present in the environment.
Fecal Coliform or E.coli	2017	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 Fibers per Liter
ND	= Not detected above laboratory method detection limits	--	= No applicable standard
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.		