Lowell Regional Water Utility

815 Pawtucket Blvd., Lowell, MA 01854

2013 Annual Water Quality Report

Volume 16 PWS ID # MA 3160000

~ OUR PRIDE FLOWS ~

Dear Consumer: The Lowell Regional Water Utility (LRWU) is proud of the fine drinking water it provides to the residents of Lowell and to several of our neighboring communities. We are pleased to present a summary of the quality of the water provided to you during the calendar year 2013. The USEPA 1996 Safe Drinking Water Act (SDWA) requires that all utilities across the country issue an annual "Consumer Confidence Report" to their customers in addition to other notices that may be required by law. This report details where our water comes from, what it contains, and the possible risks to the health of certain segments of the population. Our constant water testing and the continuously updated treatment plant are designed to insure that we are providing you with the safest and most reliable water supply. We encourage public interest and participation in our community's decisions affecting drinking water. Informed consumers are our best allies in maintaining safe drinking water. All requests for information or any questions regarding this Water Quality Report should be directed to Steven Duchesne, Superintendent of Operations, at 978-674-1677, or Fax at 978-970-4235.

From the desk of Daniel J. Lahiff, Executive Director: Over the last decade, the Lowell Regional Water Utility's (LRWU's) primary focus has been to improve the quality, pressure and reliability of the City's water supply. We have performed numerous upgrades to the treatment plant and distribution system, each of which was required to satisfy regulatory requirements and improve water service to consumers. I am proud to report that the City of Lowell continues to provide residents with the highest water quality at one of the lowest rates in the Commonwealth at $2.076 per hundred cubic feet(HCF). In fact, despite the significant amount of work performed on our water system in recent years, of over 270 communities and water systems in Massachusetts, our water rates continue to be in the lowest 5% in the state. Today, the LRWU is continuing its focus on improving water service to the consumer population it serves. Recently completed projects and new projects currently underway will further improve the quality, pressure and reliability of the water we deliver to consumers. We are also continuing to improve the overall efficiency of the water treatment plant and pumping operations. These projects include improvements to the distribution system, pumping stations and water treatment plant, including the installation of a large solar panel array on the roof and grounds of the water treatment facility. This highly visible installation located adjacent to Pawtucket Boulevard exemplifies the LRWU's and the City's commitment to energy efficiency and renewable energy. Each of these projects is critical to the LRWU's ongoing effort to reliably deliver high quality water for many years to come.

Overview:

In 2013, the LRWU purified more than 4.4 billion gallons (4,404,658,000) of drinking water delivered to approximately 135,000 residents and businesses in the communities of Lowell, Dracut, Tyngsboro, and Chelmsford. **Lead and Copper Reduction:** The annual monitoring rounds of lead and copper "tap sampling" were performed for the years 2000, 2001, 2002, and 2003. In all required compliance testing rounds, the 90th percentile action level for lead (0.015 mg/l) and copper (1.3 mg/l) were not exceeded. On June 24, 2003, The Department of Environmental Protection (DEP) therefore approved a reduction in lead and copper monitoring frequency (50 samples) to once every three years. In 2012 the 90th percentile action level for lead (0.015 mg/l) and copper (1.3 mg/l) were not exceeded, allowing the utility to continue on the reduced monitoring frequency. The next round of lead and copper sample monitoring will be performed during August 2015.

An Explanation of the Water-Quality Data Table: Unless otherwise noted, this report is based upon tests conducted in the year 2013 by the Lowell Regional Water Utility's certified Laboratory Director, Treatment Plant Operators, and by certified water-testing laboratories. Terms used in the Water-Quality Table and in other parts of this report are defined here.

Maximum Contaminant Level - (MCL): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

Maximum Contaminant Level Goal - (MCLG): The level of a contaminant in drinking water below, which there is no known or expected risk to health. MCLG's allow for a margin of safety.

Maximum Residual Disinfectant Level - (MRDL): The highest level of a disinfectant (chlorine) allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal - (MRDLG): The level of a drinking water disinfectant (chlorine) below, which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Action Level - (AL): The concentration of a contaminant that, if exceeded, triggers a treatment or other requirement, which a water system must follow.

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

Key to Table:

ppm = parts per million, or milligrams per liter (mg/l)
ppb = parts per billion, or micrograms per liter (µg/l)
pCi/l = picocuries per liter (a measure of radioactivity)
TT = Treatment Technique
AL = Action Level
N/A = Not Applicable
MDL = Method Detection Limit

MRDL = Maximum Residual Disinfectant Level
MRDLG = Maximum Residual Disinfectant Level Goal
MCL = Maximum Contaminant Level
MCLG = Maximum Contaminant Level Goal
NTU = Nephelometric Turbidity Units
N/D = Non-Detectable
90th % = Out of 10 homes, 9 were at or below this level

2013 Water Quality Data Table

Contaminant Detected	Unit	MCL	MCLG	Level Detected	Range of Detection	Major Sources	Violation
Regulated Contaminants							
Nitrate	ppm	10	10	0.25	N/A	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion from natural deposits.	NO
Fluoride * (see below)				1.11	0.91 to 1.11	Water additive which promotes strong teeth.	NO
* State (MCL)	ppm	2	none				
* EPA (MCL)	ppm	4	none				
Sodium	ppm	none	none	25.9	N/A	Erosion of natural deposits; road salt and water treatment chemicals.	NO
Chlorite	ppm	1.0	0.8	0.52	N/D to 0.52	By-product of drinking water disinfection.	NO
Turbidity (see note)	NTU	1.0	TT= 100 %	0.17	0.08 to 0.17	Soil runoff.	NO

TT = lowest percentage of monthly samples <0.3 NTU

Note: Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

Disinfectant residual	ppm	(MRDL) 4	(MRDLG) 4	1.01	0.47 to 1.01	By-product of drinking water disinfection.	NO
Perchlorate	ppb	2.0	none	0.42	N/A	Rocket propellants, fireworks, munitions, flares, blasting agents. Aged water treatment disinfection chemicals.	NO
Volatile Organic Contaminants							
(TTHM) [Total Trihalomethanes]	ppb	80	0	(69.8) (Highest Running Annual Average)	N/D to 69.8	By-product of drinking water chlorination.	NO
Disinfection By-Product Contaminants							
(HAA) [Halo-acetic Acids]	ppb	60	0	(22.7) (Highest Running Annual Average)	0 to 22.7	By-product of drinking water chlorination.	NO
Unregulated Contaminants							
MTBE	ppb	none	none	N/D	N/D < 0.05	Gasoline Additive.	NO
Chloroform	ppb	none	none	19.82	N/D to 19.82	By-product of drinking water chlorination.	NO
Bromodichloromethane	ppb	none	none	4.08	N/D to 4.08	By-product of drinking water chlorination.	NO
Sulfate	ppm	none	none	5.0	5.0	Mineral and nutrient	NO

Unregulated contaminants are those for which 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.

Radionuclides							
Gross Alpha	pCi/l	15	0	0.5 (+-1.1)	N/A	Erosion of natural deposits	NO
Radium 228	pCi/l	5	0	0.1 (+-0.6)	N/A	Erosion of natural deposits	NO

Contaminant	Unit	AL	MCLG	90th % Value	# of Samples Above AL	Major Sources	Violation
Lead	ppb	15	0	.001	0 of 50	Corrosion of household plumbing systems. Erosion of natural deposits;	NO
Copper	ppm	1.3	1.30	0.04	0 of 50	Corrosion of household plumbing systems. Erosion of natural deposits; Leaching from wood preservatives	NO

Finished water pH 7.6 to 8.4

Water Source:

The only water supply for Lowell's Water Treatment Plant is the surface water from the Merrimack River, which has its source in the White Mountains of New Hampshire. The Intake Station is situated on the riverbank north of the city and water is pumped one half mile to the treatment plant. The interconnections with the surrounding communities are to supply them with water; they cannot supply water to Lowell. A draft source water assessment **(SWAP)** was completed by the Massachusetts DEP. The (SWAP) report is available at the water utility for any parties interested.

A susceptibility ranking of High was assigned to this system using the information collected during the assessment by the DEP. As with many water systems, this watershed contains potential sources of contamination. However, source protection measures reduce the risk of actual contamination. The Lowell Regional Water Utility was commended for taking an active role in protecting their drinking water source. Some examples of the staff's good work include the following:

Emergency Planning and Response – The Utility works with upstream communities in Massachusetts and New Hampshire on emergency response planning. The Utility has an emergency management committee and coordinates activities with the Massachusetts Emergency Management Agency (MEMA) facility in Tewksbury.

Communication with Other Communities – The Utility maintains contact with upstream and downstream communities, including those in New Hampshire, on a variety of source protection issues.

Unregulated Contaminants:

Our utility participated in a major drinking water quality-testing program in 1998 called the **Information Collection Rule (ICR).** One of the contaminants we tested for is the parasite Cryptosporidium which has caused outbreaks of intestinal disease in the U.S. and overseas. Cryptosporidium is the only contaminant for which source water monitoring results must be reported. It is common in surface water, very hard to kill, and even a well-run water system will contain some live parasites. The U.S. Environmental Protection Agency (EPA) is working to resolve several scientific issues that will allow it to set Cryptosporidium safety standards. Our testing, performed quarterly in 1998 on the river water, revealed the presence of Cryptosporidium, but no precaution about our drinking water is currently needed for the general public, since **Cryptosporidium was not found in the finished treated drinking water that goes to your tap!**

Required Educational Information:

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. 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 potential health effects of their drinking water from their health care providers. In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in *bottled water* that must provide the same protection for public health. Contact the EPA's Safe Drinking Water Hotline (800-426-4791) for more information about contaminants and potential health effects; and EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants.

Perchlorate - Perchlorate interferes with the normal function of the thyroid gland and thus has the potential to affect growth and development, causing brain damage and other adverse effects, particularly in fetuses and infants. Pregnant women, the fetus, infants, children up to the age of 12, and people with a hypothyroid condition are particularly susceptible to perchlorate toxicity.

Fluoride was added to prevent tooth decay/cavities.

Lead - "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. The Lowell Regional Water Utility 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 *1.800.426.4791* or at: http://www.epa.gov/safewater/lead.

Contaminants that may be present in source water include:

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.

- **(A) Microbial contaminants;** such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **(B) 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, or farming.
- **(C) Pesticides and herbicides;** may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- **(D) Organic chemical contaminants;** include 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.
- **(E) Radioactive contaminants;** can be naturally occurring or be the result of oil and gas production and mining activities.

You can find us on the City of Lowell, MA Web page at: http://www.lowellma.gov/dpw/water/Pages/default.aspx and on the EPA Web page at: http://yosemite1.epa.gov/ogwdw/ccr.nsf/america?openview&start=407

CROSS-CONNECTION CONTROL AND BACKFLOW PREVENTION

The Lowell Regional Water Utility makes every effort to ensure that the water delivered to your home and business is clean, safe and free of contamination. Our staff works very hard to protect the quality of the water delivered to our customers from the time the water is extracted from the Merrimack River, throughout the entire treatment and distribution system. But what happens when the water reaches your home or business?

What is a cross-connection?

A cross-connection occurs whenever the drinking water supply is or could be in contact with potential sources of pollution or contamination. Cross-connections exist in piping arrangements or equipment that allowed the drinking water to come in contact with non-potable liquids, solids or gases (hazardous to humans) in event of a backflow.

What is a backflow?

Backflow is the undesired reverse of the water flow in the drinking water distribution lines. This can occur when the pressure created by an equipment or system such as a boiler or air-conditioning is higher than the water pressure inside the water distribution line (backpressure), or when the pressure in the distribution line drops due to routine occurrences such as water main breaks or heavy water demand causing the water to flow backward inside the water distribution system (back-siphonage).

What can I do to help prevent a cross-connection?

- 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 in any 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.
- If you are the owner or manager of a property that is being used as a commercial, industrial or institutional facility you must have your property's plumbing system surveyed for cross-connection by your water purveyor. If your property has NOT been surveyed for cross-connection, contact your water department to schedule a cross-connection survey. For more information, please contact Daniel Lahiff at (978) 674-1675.

Le rapport contient des informations concernant la qualité de l'eau de votre communauté. Faites-le traduire, ou parlez-en à un ami qui le comprend bien.

El informe contiene información importante sobre la calidad del agua en su comunidad. Tradúzcalo o hable con alguien que lo entienda bien.

O relatório contém informações importantes sobre a qualidade da água da comunidade. Traduza-o ou peça ajuda de uma pessoa amiga para ajudá-lo a entender melhor.

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"There's a lot to like about Lowell" *(2013 Water Quality Report)*