

2000 Water Quality Report

Report's Purpose

The Littleton Water Department is pleased to present this annual report on the quality of our water for the 2000 calendar year. As the stewards of the town's drinking water, we are proud to relate that it is of the highest quality, meeting and exceeding all primary drinking water standards set forth by the US Environmental Protection Agency (EPA) and the Massachusetts Department of Environmental Protection (DEP). While this report satisfies a state requirement for reporting water quality data, it also gives us an opportunity to share with you important information on the sources of our water supply, treatment techniques, conservation measures and protection activities. Please take the time to review the report and save it as a reference.

Water Sources

The Town of Littleton's drinking water comes from four wells in shallow sand and gravel deposits located within the Beaver Brook and Bennett's Brook watersheds. These four groundwater production wells are used to withdraw over 2.5 million gallons per day of drinking water. As water travels through the ground, it can dissolve naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. The sand and gravel act as a natural filter and a huge underground reservoir, which is continually replenished by rainfall and snowmelt. Once the water is pumped from the ground, it enters the distribution system, composed of over 42 miles of water main



and three standpipes. The standpipes, located on Newtown Hill, Cedar Hill, and Oak Hill store over 2 million gallons of water. This storage capacity helps maintain system-wide water pressure while at the same time providing sufficient amounts of water during periods of high water demand (i.e., fire flow protection). Water personnel not only service and maintain the existing distribution system, but also provide assistance required for system growth and development.

Drinking Water Quality

Primary drinking water standards have been established by the US Environmental Protection Agency to insure the protection of human health. These standards relate to natural and man-made chemicals commonly identified within drinking water recharge areas. The water department routinely monitors all municipal drinking water wells to evaluate the water quality entering our distribution system. We are pleased to report that the drinking water within our system meets or exceeds all established primary drinking water standards.

Secondary drinking water standards have been set for those chemicals that manifest themselves as nuisance or aesthetic water quality problems. Manganese, a naturally occurring mineral found within our local sand and gravel deposits, is identified at elevated levels at some of our drinking water wells. Occasionally, the elevated levels of manganese form a grey-black precipitate which may cause staining problems most commonly identified in washing machines.

The new Spectacle Pond Water Treatment Plant removes elevated levels of iron and manganese from the Spectacle Pond well. Once a year, the water department carries out its water main flushing program to help reduce the adverse impacts caused by manganese buildup in the distribution system.



Regulatory Compliance

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. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general public. Immuno-compromised persons, such as those undergoing chemotherapy or those who have undergone organ transplant; persons with HIV/AIDS or other immune system disorders; and 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/Centers for Disease Control and Prevention (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).



Drinking Water Treatment

In May 1998, our new treatment plant began operation to remove iron and manganese from our Spectacle Pond Well. Excessive iron and manganese can cause aesthetic problems such as staining on laundry and bathroom fixtures but are not a health concern. The application of ozone to the water causes the iron and manganese to form solid precipitates that are then removed by fine pore filters at the plant (ultrafiltration).

Potassium hydroxide is added to the Town of Littleton's drinking water supply. It is added at very low concentrations to increase the pH of our water and reduce its natural



corrosivity. Corrosive water is undesirable because it can cause service leaks, stains of plumbing fixtures, and even degrade the drinking water quality by leaching copper or lead out of private service lines.



LWD's Spectacle Pond Treatment Facility

Additional Information

LWD's Public Water Supply Number is 2158000

This is LWD's third annual Consumer Confidence Report. The DEP has commented on the first two (for the 1998 and 1999 calendar year) and has required several clarifications and expanded explanations. These have been incorporated into this year's report. We did not test for synthetic organic compounds (SOCs) in 2000 and therefore did not report them this year. According to our sampling history, there is no SOC contamination in our water supplies.

For additional information or a complete breakdown of the analyses conducted at wells and distribution locations, please contact either Savas Danos, General Manager or Deborah Bray, Environmental Analyst at the Littleton Water Department at (978) 486-3104, between the hours of 7:00 AM and 4:00 PM, M-F. In addition, you can visit us at our web site www.lclwd.com.

The Board of Water Commissioners meets bi-monthly on Monday evenings at 7:00 PM. Meeting notices are posted at the Town Hall and at the Light and Water Administration Building, 39 Ayer Road.



Sampling Waivers

The Massachusetts DEP reduced the monitoring requirements for inorganic compounds (IOCs) to less than once per year given that our wells have routinely tested clean for IOCs and are not at risk of significant contaminant threats. The last time we sampled for IOCs was on June 11, 1999 and our wells were found to be free of these contaminants.

We also have a waiver for asbestos sampling; this waiver was granted because our system has consistently met the asbestos standard in drinking water. The last time we sampled our distribution system for asbestos was in December 2000 and all analyses revealed "no detects."

System Improvements

The LWD continues to upgrade our distribution system to meet the needs of our customers. Construction of a new standpipe at Oak Hill is underway. The new tank, a 1.8 million gallon concrete tank similar to the one on Newtown Hill Road, will replace the current 300,000 gallon steel tank on Oak Hill. The new tank will be sited on land behind the existing tank, which will save up to 50% on the cost of the project. After completion of the new standpipe, the old one will be dismantled and the area will be used as a picnic area for hikers. The new standpipe is critical to meet our consumptive requirements and ensure public safety.



An upgrade of the Whitcomb Avenue well is nearing completion, and in conjunction with the Highway Department's repaving of Newtown Road, the Water Department is upgrading the water main. We are committed to making the necessary enhancements to provide you with clean, safe water.



In-ground Sprinkler Systems

In-ground sprinkler systems must have backflow devices installed on them. The Massachusetts DEP recommends inspecting in-ground sprinkler systems every year. Many are unaware of this recommendation, especially those customers who may have installed a system only recently. Please call our office for more details and to schedule a convenient time for our utility specialist to complete the inspection.



Water Rate Increase

On January 1, 2001, the Littleton Water Department adopted a 5% rate increase for all customer classes to help offset the costs of necessary system improvements.

There is a new ascending block rate for residential water usage that exceeds 5,000 cubic feet per quarter (\$0.0249 per cubic foot). After careful study, the Board of Water Commissioners instituted this 5% "high use" fee in an effort to encourage greater conservation of our water.

Water rates have remained stable for several years; but with a number of important capital projects scheduled over the next few years the department has found it necessary to increase receipts to help finance their completion.

Water Resource Protection

The Town of Littleton integrates land-use planning, environmental audits, and groundwater monitoring in an aggressive and comprehensive aquifer and watershed protection program. Begun in 1981, much of the success of the program is due to a cooperative relationship between community planners and industrial and commercial developments. Currently, more than 100 groundwater monitoring wells are sampled annually throughout the community by the water department. All compliance monitoring costs are borne by the property owners.

One important factor in the program's success has been the water department's effort to foster a cooperative partnership with the business community. Through communication, monitoring and public awareness, the program has become a proactive tool in protecting our groundwater resources.

This program has been recognized as a model for the development of wellhead protection strategies in surrounding towns and other New England communities.



Conservation Measures

While we received enough rain in the summer of 2000 to adequately replenish our resources, it is always important to practice conservation.

The single greatest contributing factor to increased water usage is excessive lawn watering, primarily via sprinkler systems. It is important to note that one inch of water per week is all that is necessary for proper lawn maintenance. We must remain cognizant of the fact that our water is not an unlimited resource and continue to use it wisely. And as new home construction continues, we must redouble our efforts to promote more naturally wooded lots, smaller lawns and drought-resistant landscap-



ing.

Please practice basic conservation measures to avoid stressing our system and continue to look for ways to use water wisely.

Conservation Tips

- Water early in the morning or evening when evaporation rates are lowest.
- Don't water the pavement!
- Install moisture sensors on sprinklers systems.
- Avoid over watering by using a rain gauge or coffee can to measure the volume of water being applied.

Special Sampling

Bromate and Bromide

These byproducts of chlorine disinfectant are used in the Spectacle Pond Treatment Plant. LWD does not post-chlorinate any of its water supplies, but we do use small amounts of sodium hypochlorite (a chlorinating agent) within our treatment plant. This helps keep our filters algae free and prolongs their utility. Special sampling was conducted for bromate and bromide throughout our Spectacle Pond Drinking Water Treatment Plant and found to be “**Below Detection Limit.**”

Radon

The last time we sampled for radon was March 15, 1999. The highest level detected was 1,900 pCi/l, which is well below the advisory limit of 10,000 pCi/l.

Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will be (in most cases) a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing elevated radon levels can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. Fix your home if the level of radon in your air is 4 picocuries per liter of air (pCi/l) or higher. There are simple ways to fix a radon problem that aren't too costly. For additional information call your state radon program or call EPA's Radon Hotline, 800-SOS-RADON.

Giardia and Cryptosporidium

These are microbial parasites found in surface water throughout the United States. Special sampling for these parasites was conducted on September 25, 2000 and **no organisms were detected.**

Cryptosporidium and giardia must be ingested in order to cause disease, and may be passed through means other than drinking water. Symptoms of infection include nausea, diarrhea and abdominal cramps. Most healthy individuals are able to overcome the disease within a few weeks with proper medication. 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 doctor regarding appropriate precautions to prevent infection.

Microbial Contaminants

These include viruses and bacteria from human and animal fecal waste. Sources include sewage, septic system effluent, agricultural livestock operation runoff and those sources naturally occurring from wildlife. Monthly sampling is conducted at all production wells and throughout the distribution system and continuously finds **an absence of the indicator contaminant, total coliform bacteria.** No bacteria violations occurred in 2000.

Important Definitions

High – The highest contaminant level used to determine compliance.

Maximum Contaminant Level (MCL) – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs (see below) 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. MCLGs allow for a margin of safety.

Action Level (AL) – The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

ND – none detect

ppm - parts per million, or milligrams per liter (mg/l)

ppb - parts per billion, or micrograms per liter (mg/l)

pCi/l - picocuries per liter. A unit measuring radiation.

SDWA Heavy Metals

Safe Drinking Water Act Heavy Metals include arsenic, cadmium, chromium, fluoride*, mercury, nickel, cyanide, copper, lead and zinc, among others. Of the 17 metals tested, none were detected except the following:

ppm	MCL	MCLG	HIGH	RANGE	Violation
Barium	2	2	0.02	ND - 0.02	No
Fluoride	4	4	0.1	ND - 0.1	No

***Fluoride:** It is a common practice in some communities to add fluoride to drinking water in order to strengthen children's teeth and bones. However, because only a very small percentage of the total amount of water pumped daily is used for human consumption and because fluoride can be harmful at very high levels, LWD believes the risks of fluoridating outweigh the benefits. Therefore, Littleton does not fluoridate its water supply.

Sodium

Many people today are concerned about their daily intake of sodium. In general, the sodium levels in Littleton's drinking water supply are low, although they do fluctuate somewhat during the year, due to road salting activities. In Massachusetts, the action level (see definitions) for persons on a restricted diet is 20 ppm. The range of sodium detected in our water supply was 18.9-25.7 ppm. If you have specific concerns, please contact our office or your physician.

Nitrates

This level serves as a primary standard and general indicator of water quality. Excessive nitrates can be an indicator of septic influence or be present as a result from fertilizer runoff (urban stormwater runoff) or erosion of natural deposits.

ppm	MCL	MCLG	HIGH	RANGE	Violation
Nitrates	10	10	0.81	0.38 – 0.81	No

Copper and Lead

The presence of these metals in drinking water is due to corrosion of household plumbing or plumbing fixtures. The first round of copper and lead testing in 2000 exceeded the action level for copper. After conducting comprehensive equipment inspections, repairs and adjustments were made in 2 wellhouses. The distribution system was resampled for copper and lead and no samples exceeded the action levels; our corrosion control program is operating properly.

ppm	AL	Date sampled	# Sites sampled	Results (range)	# of sites exceeding AL	90th Percentile	Violation
Copper	1.3	7/5/2000	20	0.17 – 2.3	5	1.6	Yes
Lead	0.015	7/5/2000	20	<0.001–0.046	2	0.008	No
Copper	1.3	12/8/2000	20	0.06 – 1.2	0	0.81	No
Lead	0.015	12/8/2000	20	<0.001–0.068	2	0.011	No

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested. Flush your tap for 30 seconds to 2 minutes before using tap water to reduce the lead content. Additional information is available from the Safe Drinking Water Hotline, 1-800-426-4791 or by calling our department.

Secondary Contaminants

These are general indicators of water quality. Violations of secondary standards may result in aesthetic issues, such as staining of plumbing fixtures or occasional rusty colored water. Iron and manganese, naturally occurring minerals found within our local sand and gravel deposits, are identified at elevated levels at some of our drinking water wells.

ppm	SMCL	HIGH	RANGE	Exceeds SMCL
Alkalinity	---	63	10.5 - 63.0	No
Chloride	250	65	43.1 – 65.0	No
Hardness	---	94	35.0 – 94.0	No
Iron	0.3	0.38	ND - 0.38	Yes
Manganese	0.05	0.08	ND - 0.08	Yes
PH	6.5 – 8.5	7.2	6.4 – 7.2	No
Sulfate	250	47.8	11.3 - 47.8	No
Total Dissolved Solids (TDS)	500	235	168 - 235	No

Organic Chemical Contaminants

Organic chemical contaminants including volatile organic compounds (VOCs) are man-made solvents, degreasers and byproducts from industrial processes and petroleum production and uses. They can also come from gas stations, urban stormwater runoff, and septic systems. Of the 56 VOCs and 32 SOCs tested, all were absent with the exception of the following:

ppb	MCL	MCLG	HIGH	RANGE	Violation
MTBE	70	70	0.7	0.5 - 0.7	No
Tetrachloroethylene (PCE)	5	5	<0.4	<0.4 - <0.4	No

MTBE: This contaminant is found in gasoline and its presence in groundwater is primarily due to runoff from roads or parking lots or leaking underground storage tanks.

PCE: The presence of this contaminant is due to the installation of water lines comprised of, in part, polyvinylchloride. Some people who drink water containing PCE in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.

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Littleton, MA 01460

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Littleton Water Department
July 2001