2022 Annual Drinking Water Quality Report
For
Leicester Water Supply District
Leicester, Massachusetts
MASSDEP PWSID # 2151000

This report is a snapshot of drinking water quality that we provided last year. Included are details about where your water comes from, what it contains, and how it compares to state and federal standards. We are committed to providing you with information because informed customers are our best allies.

I. PUBLIC WATER SYSTEM INFORMATION

Address: P.O. Box 86, 124 Pine Street, Leicester, MA 01524

Contact Person: Joseph H. Wood, Superintendent

Telephone #: (508) 892-8484 Fax #: (508) 892-1812

Internet Address: http://www.lwsd.net/

Water System Improvements
Our water system is routinely inspected by the Massachusetts Department of Environmental Protection (MassDEP). MassDEP inspects our system for its technical, financial, and managerial capacity to provide safe drinking water to you. To ensure that we provide the highest quality of water available, your water system is operated by Massachusetts licensed operators who oversee the routine operations of our system. As part of our ongoing commitment to you, last year we made the following improvements to our system:

The District continues to add a 2% solution of Sodium Hypochlorite to the head end of the 12" DIP Loop Line to obtain 4-log disinfection of the water delivered from the Paxton Well Field. The District also continues to add 2% sodium hypochlorite at the Rawson Water Plant. The water system SCADA system varies the amount of sodium hypochlorite injected at each location in accordance with system flows. This allows for consistent finished water quality for the District customers. Projects completed in 2022 include SCADA radio communications/ PLC upgrades have continued. Continued consulting with Resilient Civil Engineering and a hydrogeologist (NGI) for well #5 to try and establish a better yield. Continued work consulting with Resilient Civil Engineering and with Wright- Pierce Engineering on the design of an interconnection and pumping station with the City of Worcester. As of December 2022 the design is at 90% completion, the District has purchased a piece of Mass-port land in Worcester where the booster pump station will be located, a Water Purchase Agreement has been approved between Worcester and Leicester Water Supply District and we will be going out to public bid in early spring of 2023. The north water tank was taken offline, cleaned, painted and put back online this year. New safety compliance and a larger manway door were installed on the tank during the project. The south water tank was inspected and cleaned in September. Five water leaks were repaired at the following locations, 90 Rawson Street- main break,124 Pleasant Street- service leak, Becker Vet- 2" main gate leak,199 Pleasant Street- main break & replace 6" main gate and a major water main break at 1149 Main Street- there was major issues shutting down the water to the area and a 10" gate valve had to be inserted under live system pressure to stop the leak, the District lost a tremendous amount of water due to the leak and it took a number of weeks to re-fill our two water storage tanks; two new hydrant were installed, one at the intersection of Gleason Way and Warren Ave and the other at Marshall and Paxton Street. Three new water connections this year at 702 Main Street, 704 Main Street and 3A Gleason Way. Water line replacements were completed at 38 Manville Street and 124 Pleasant Street.

Opportunities for Public Participation
If you would like to participate in discussions regarding your water quality, you may attend the following meetings or educational events: Regular Commissioner's Meetings are held the third Thursday of each month at 4:15 P.M. at the District offices on 124 Pine Street. Our annual meeting is held the last Tuesday of May each year. During 2022, the Annual Meeting was held on June 15, 2022.

2. YOUR DRINKING WATER SOURCE

Where Does My Drinking Water Come From?
Your water is provided by the following sources as listed below:
The Leicester Water Supply District is a Municipal Water System that provides water to approximately 3,300 residents in the central area of Leicester. The water we distribute is groundwater that is pumped from bedrock aquifers. The sources are located in two areas; a well field in the Town of Paxton (Source Id # 01G, 02G, 03G,04G, and 07G) and two wells in Leicester, the Whittemore Street well (05G) and the Rawson Street well(06G). The Whittemore Street well is currently off line until treatment for arsenic and uranium can be provided. The District's system has two - 600,000 gallon water tanks located just north of the Leicester High School at the intersection of RT 56 and Hyland Avenue. The tanks provide storage for fire flows and deliver water to your homes, service area businesses and all parts of the distribution system.

Source Name	MassDEP Source ID#	Source Type	Location of Source
01G	2151000-01G	Groundwater	Paxton well field
02G	2151000-02G	Groundwater	Paxton well field
03G	2151000-03G	Groundwater	Paxton well field
04G	2151000-04G	Groundwater	Paxton well field
05G	2151000-05G	Groundwater	Whittemore Street
06G	2151000-06G	Groundwater	Rawson Street
07G	2151000-07G	Groundwater	Paxton well field

Is My Water Treated?
The District makes every effort to provide you with safe potable drinking water. To improve the quality of the water delivered to you, we treat it to remove several contaminants.

- *We add a solution of sodium hypochlorite, a disinfectant, to protect you against microbial contaminants.*
- *We chemically treat the water to reduce the concentration of lead and copper.*
- *We chemically treat the water to reduce levels of iron and manganese.*
- *We filter the water to remove uranium and other naturally occurring radionuclides. (Wells 02G, 03G + 06G)*
- *We filter the water to remove arsenic. (Wells 02G, 03G + 06G)*
- *We aerate the water to reduce radon concentrations. (Well #06G)*

The water quality of our system is continuously monitored by our operators and MassDEP to determine the effectiveness of existing water treatment systems and to determine if any additional treatment is required.

How Are These Sources Protected?
MassDEP has prepared a Source Water Assessment Program (SWAP) Report for the water supply source(s) serving this water system. The SWAP Report assesses the susceptibility of public water supplies to contamination.

What is My System's Ranking?
A susceptibility ranking of Moderate was assigned to this system using the information collected during the assessment by MassDEP.

Where Can I See the SWAP Report?

The complete SWAP report is available at *our office located at 124 Pine Street, Leicester, MA during regular business hours* and online at https://www.mass.gov/doc/central-region-source-water-assessment-protection-swap-program-reports-0/download. For more information, call Joseph H. Wood - Superintendent at (508) 892-8484.

What Can Be Done to Improve Protection?
Residents can help protect sources by:

- Practicing good septic system maintenance.
- Supporting water supply protection initiatives at the next town and/or annual District meeting.
- Taking hazardous household chemicals to hazardous materials collection days.

- Contacting the District or Board of Health to volunteer for monitoring or education outreach to schools.
- Limiting pesticide and fertilizer use, etc.

3. SUBSTANCES FOUND IN TAP WATER

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.

Contaminants 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, and wildlife.

Inorganic contaminants -such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, and 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 can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants -which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the Department of Environmental Protection (MassDEP) and U.S. Environmental Protection Agency (EPA) prescribe regulations that limit 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 that must provide the same protection for public health. All 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 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 some 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 lowering the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

4. IMPORTANT DEFINITIONS

Maximum Contaminant Level (MCL) – 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.

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 that a water system must follow.

90th Percentile – Out of every 10 homes sampled, 9 were at or below this level.

Secondary Maximum Contaminant Level (SMCL) – These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

Unregulated Contaminants
Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted.

Massachusetts Office of Research and Standards Guideline (ORSG) – 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.

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

Running Annual Average (RAA) – The average of four consecutive quarter of data.

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

Level 1 Assessment - A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

Level 2 Assessment - A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an *E. coli* MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

ppm = parts per million, or milligrams per liter (mg/l)
ppb = parts per billion, or micrograms per liter (ug/l)
ppt = parts per trillion, or nanograms per liter
pCi/l = picocuries per liter (a measure of radioactivity)
NTU = Nephelometric Turbidity Units
ND = Not Detected
N/A = Not Applicable
mrem/year = millirems per year (a measure of radiation absorbed by the body)

5. WATER QUALITY TESTING RESULTS

What Does This Data Represent?
The water quality information presented in the table(s) is from the most recent round of testing done in accordance with the regulations. All data shown was collected during the last calendar year unless otherwise noted in the table(s).

	Date(s) Collected	90TH percentile	Action Level	MCLG	# of sites sampled	# of sites above Action Level	Possible Source of Contamination
Lead (ppb)	9/8/2021	2.6	15	0	**13**	**0**	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	9/8/2021	0.296	1.3	1.3	**13**	**0**	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

"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. Leicester Water Supply District 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."

Regulated Contaminant	Date(s) Collected	Highest Result or Highest Running Average Detected	Range Detected	MCL or MRDL	MCLG or MRDLG	Violation (Y/N)	Possible Source(s) of Contamination
Inorganic Contaminants							
Beryllium (ppm)	5/12/22	0.022	0.022	0.004		**N**	Discharge from electrical, aerospace, and defense industries; erosion of natural deposit
Fluoride (ppm)	5/12/22	0.201	0.201	2		**N**	Erosion of natural deposit
Nitrate (ppm)	5/22/22	1.73	ND–1.73	10		**N**	Runoff from fertilizer use; leaching from septic tanks; sewage; erosion of natural deposits
Synthetic Organic Contaminants							
None detected in the samples collected							
Volatile Organic Contaminants							
None detected in the samples collected other than disinfection byproducts							
Radioactive Contaminants							
Gross Alpha (pCi/L) (minus uranium)	6/16/21	0.995	0.995	15	0	**N**	Erosion of natural deposits
Radium 226 & 228 (pCi/L) (combined values)	6/24/20	1.008	0.0259 – 1.008	5	0	**N**	Erosion of natural deposits
Disinfectants and Disinfection By-Products							
Total Trihalomethanes (TTHMs) (ppb)	2/11/22 5/10/22 8/9/22 11/30/22	22.4	6.15 – 22.4	80		**N**	Byproduct of drinking water chlorination
Haloacetic Acids (HAA5) (ppb)	2/11/22 5/10/22 8/9/22 11/30/22	1.04	ND – 1.04	60		**N**	Byproduct of drinking water chlorination
Chlorine (ppm) (free, total or combined)	Monthly	0.74	0.56 – 2.13	4		**N**	Water additive used to control microbes

Regulated Contaminant	Date(s) Collected	Detect Result or Range	Highest Quarterly Average	MCL	Violation (Y/N)	Possible Source(s)	Health Effects
Per- and Polyfluoroalkyl Substances (PFAS)							

Regulated Contaminant	Date(s) Collected	Detect Result or Range	Highest Quarterly Average	MCL	Violation (Y/N)	Possible Source(s)	Health Effects
PFAS6 (ppt)	2022 (tested monthly)	ND – 16.3	15	20	**N**	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of moisture and oil resistant coatings on fabrics and other materials. Additional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams.	Some people who drink water containing these PFAS in excess of the MCL may experience certain adverse effects. These could include effects on the liver, blood, immune system, thyroid, and fetal development. These PFAS may also elevate the risk of certain cancers.

Unregulated contaminants are those for which there are no established drinking water standards. The purpose of unregulated contaminant monitoring is to assist regulatory agencies in determining their occurrence in drinking water and whether future regulation is warranted.

Unregulated Contaminants	Date(s) Collected	Result or Range Detected	Average Detected	SMCL	ORSG	Possible Source
Bromodichloromethane (ppb)	5/12/22	ND – 1.5	1.2	N/A	N/A	Trihalomethane; by-product of drinking water chlorination
Bromoform (ppb)	5/12/22	ND – 1.28	0.6	N/A	N/A	Trihalomethane; by- product of drinking water chlorination
Chloroform (ppb)	5/12/22	ND – 1.1	0.8	N/A	70	By-product of drinking water chlorination (In non-chlorinated sources it may be naturally occurring)
Chlorodibromomethane (ppb)	5/12/22	ND – 2	1.6	N/A	N/A	Trihalomethane; by- product of drinking water chlorination
Nickel (ppb)	5/12/22	1.6	1.6	N/A	100	Discharge from domestic wastewater, landfills, and mining and smelting operations
Radon (pCi/L)	5/12/22	78	78	N/A	10,000	Natural sources
Sodium (ppm)	5/12/22	38.2	38.2	N/A	20	Discharge from the use and improper storage of sodium-containing de-icing compounds or in water-softening agents
Perfluorobutanesulfonic acid (PFBS) (ppt)	2022	ND – 3.4	1.6	N/A	N/A	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of moisture and oil resistant coatings on fabrics and other materials. Additional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams.
Perfluorohexanoic acid (PFHxA) (ppt)	2022	ND – 6.8	4.1	N/A	N/A	Discharges and emissions from industrial and manufacturing sources associated with the production or use of these PFAS, including production of moisture and oil resistant coatings on fabrics and other materials. Additional sources include the use and disposal of products containing these PFAS, such as fire-fighting foams.
Secondary Contaminants	**Date(s) Collected**	**Result or Range Detected**	**Average Detected**	**SMCL**	**ORSG**	**Possible Source**
Manganese* (ppb)	2022	ND - 6	2	50	Health Advisory of 300	Natural sources as well as discharges from industrial uses
* EPA has established a lifetime Health Advisory (HA) for manganese of 300 ppb and an acute HA at 1,000 ppb.						

6. COMPLIANCE WITH DRINKING WATER REGS

Does My Drinking Water Meet Current Health Standards?
We are committed to providing you with the best water quality available. We collected all samples during 2020 at the required times and dates as set by MassDEP.

Samples analyzed for Total Trihalomethanes (THM's) and Haloacetic Acids (HAA's) were taken at required dates and times and analyses indicated our water quality was well within required parameters.

Health Effects Statements
Total Coliform: Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present. Coliform bacteria were not detected the finished water during 2022.

Most well water in Leicester contains at least trace concentrations of Arsenic. The District treats for removal of arsenic from wells 02G, 03G and 06G. While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic, although testing of treated water during 2022 indicated non-detectable amounts of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Administrative Consent Order – ACOP-CE-16-5D001
In 2016 the MassDEP determined that Pierce Spring, one of the system's original water supplies, is under the influence of surface water. The USEPA and the State requires that all drinking water that originates from or is influenced by a surface water source be treated. Because of this determination, the MassDEP has issued an Administrative Consent Order with Penalty, ACOP, to take the Paxton wells off-line and connect to the Worcester water system. The date of the ACOP is 12/15/2020. Corrections to MassDEP's ACOP deficiencies will take several years to accomplish. For the past five years Leicester Water Supply District, LWSD, has been adding Sodium Hypochlorite (chlorine) to the water from the Paxton wells for disinfection purposes. This includes the small amount of water generated from Pierce Spring. The design of the new water pumping station and transmission line to supply water from Worcester was completed in 2022 and construction is anticipated to begin in 2023. Our schedule for this project calls for it to be completed by 2023.

If any customer should have any questions relative to the Consent Order, please contact the District offices at 508-892-8484 and speak with Superintendent Joseph H. Wood.

Please share this information with all the people who drink the District's water, especially those who may not have received this notice directly (for example, customers who live in apartments, nursing homes, schools, and businesses). This Consumer Confidence Report will be posted in local public places as required by MassDEP regulations.

7. EDUCATIONAL INFORMATON

Do I Need To Be Concerned About Certain Contaminants Detected In My 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. Leicester Water Supply District 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.

8. ADDITIONAL INFORMATION

Preventing backflow of system water is an important part of maintaining a healthy water supply. The Leicester Water Supply District's water distribution system is designed to carry water from the water treatment plant to the consumer. Cross connections, or connections between potable water in the distribution system to any non-potable water, exist. These connections make the water distribution system susceptible to backflow, which is the reversal of water flow from its intended direction. In other words, non-potable water could be introduced into the distribution system.

There are two types of backflow:

- **Backpressure backflow,** which occurs when the pressure outside the water distribution system exceeds the pressure within the system.
- **Backsiphonage,** which occurs when a partial vacuum is created in the system sucking non-potable water back into it.

Three Common Types of Backflow Prevention Devices for Water Systems

Pressure Vacuum Breaker

Pressure Vacuum Breaker.
This device is approved for irrigation systems. However, the device is rarely used for above ground installations because it is subject to freezing during winter months. This device is also approved for chemical injection systems on sprinklers. Irrigation systems can be turned off with 1 of 2 shut off handles.

Atmospheric Vacuum Breaker

Atmospheric Vacuum Breaker.
This device is commonly found on older sprinkler systems, but is not approved for new installations because it is non-testable. It must be replaced by a Double Check Valve when upgrading irrigation system. It has no shut off handles to isolate irrigation system.

Double Check Valve

Double Check Valve.
This is the most widely used backflow prevention device on sprinkler systems. It is installed below grade in a standard valve box. Irrigation system can be turned off at 1 of 2 shut off handles.

Simple Steps to Prevent Backflow:

- Guard against cross connections. A garden hose is a direct connection to the drinking water in the home. Don't attach chemical sprayers or leave a garden hose submerged in a swimming pool. (Hose Bibb Vacuum Breakers may also be installed on garden hoses)
- Make sure backflow prevention devices are installed on your home sprinkler system. Common devices are Double Check Valve Assemblies and Pressure Vacuum Breakers.