

ANNUAL WATER QUALITY REPORT

Reporting Year 2021



Presented By
Lebanon Water System

PWS ID#: TN0000393

We've Come a Long Way

Once again, we are proud to present our annual water quality report covering the period between January 1 and December 31, 2021. In a matter of only a few decades, drinking water has become exponentially safer and more reliable than at any other point in human history. Our exceptional staff continues to work hard every day—at all hours—to deliver the highest-quality drinking water without interruption. Although the challenges ahead are many, we feel that by relentlessly investing in customer outreach and education, new treatment technologies, system upgrades, and training, the payoff will be reliable, high-quality tap water delivered to you and your family.

Community Participation

The Lebanon City Council meets the first and third Tuesdays of each month at 6:00 p.m. at City Hall. Please feel free to participate in these meetings.

Lead in Home Plumbing

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. We are responsible for providing high-quality drinking water, but we 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 two 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 at (800) 426-4791 or at www.epa.gov/safewater/lead.

Where Does My Water Come From?

Lebanon Water System customers enjoy an abundant surface water supply from the Cumberland River.

Source Water Assessment Program

As part of the Source Water Assessment Program, the Tennessee Department of Environmental Quality (TDEQ) has prepared a report that assesses the susceptibility of the state's untreated water sources to potential contamination. To ensure safe drinking water, all public water systems treat and routinely test their water. Water sources have been rated as reasonably susceptible, moderately susceptible, or slightly susceptible. Our rating is slightly susceptible. An explanation of the Tennessee Source Water Assessment Program, the source water assessment summaries, the susceptibility scorings, and the overall TDEQ report can be viewed at <https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/source-water-assessment.html>, or you may contact the Lebanon Water System to obtain copies of our specific assessment.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from our water source, then carbon is added, if needed, to help control taste and odor and reduce disinfection by-products. The water then goes to a mixing tank, where polyaluminum chloride is added, and then to flocculation chambers. The addition of these substances causes small particles (called "floc") to adhere to one another, making them heavy enough to settle into a basin from which sediment is removed. At this point, the water is filtered through layers of fine coal and silicate sand, and some sodium hypochlorite is added. As smaller suspended particles are removed, turbidity disappears, and clear water emerges. The water is then filtered through granular activated carbon filters to further improve taste and odor, absorb contaminants that traditional filters could not remove, and reduce disinfection by-products. Sodium hypochlorite is generated on-site and is then added as a disinfectant. (We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste.) Finally, soda ash (to adjust the final pH and alkalinity), when needed, and a corrosion inhibitor (to protect distribution system pipes) are added before the water is pumped to sanitized reservoirs and water towers and into your home or business.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



QUESTIONS? For more information about this report, or for any questions relating to your drinking water, please call Jeremiah York at (615) 444-0485.

Substances That Could Be in Water

In order to ensure that tap water is safe to drink, U.S. EPA and the Tennessee Department of Environment and Conservation prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases radioactive material, and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife;

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

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.



What's a Cross-connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed industrial, commercial, and institutional facilities in the service area to make sure that potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test backflow preventers to make sure that they provide maximum protection.

For more information on backflow prevention, contact the Safe Drinking Water Hotline at (800) 426-4791.

Cryptosporidium in Drinking Water

Cryptosporidium is a microbial parasite found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100-percent removal. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. Monitoring of source water and/or finished water indicates the presence of these organisms. The Lebanon Water System conducted U.S. EPA Long Term 2 *Cryptosporidium* testing from October 2016 to September 2018. During this testing, the source water showed the presence of *Cryptosporidium* on two occasions. Both of these occurrences took place during heavy rain or flooding events, which indicates the source of the contamination came from excessive runoff from farmland. The concentration of *Cryptosporidium* in the source water was very low and did not show up in the filtered water that is sent to the public. Due to the low level of *Cryptosporidium* concentration present, there is not currently any need or requirement for the City of Lebanon to provide any further treatment to its source water. If you have any questions or concerns about *Cryptosporidium*, please contact Jeremiah York at (615) 444-0485.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule, and the water we deliver must meet specific health standards. Here, we only show those substances that were detected in our water (a complete list of all our analytical results is available upon request). Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels.

The state recommends monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.



REGULATED SUBSTANCES

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | MCL [MRDL] | MCLG [MRDLG] | AMOUNT DETECTED | RANGE LOW-HIGH | VIOLATION | TYPICAL SOURCE |
|---|--------------|------------------------------------|--------------|-----------------|----------------|-----------|---|
| Chlorine (ppm) | 2021 | [4] | [4] | 1.90 | 0.8–2.9 | No | Water additive used to control microbes |
| Haloacetic Acids [HAAs]–Stage 2 (ppb) | 2021 | 60 | NA | 20.45 | 13.7–28.6 | No | By-product of drinking water disinfection |
| Nitrate (ppm) | 2021 | 10 | 10 | 0.458 | NA | No | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits |
| Total Organic Carbon ¹ (ppm) | 2021 | TT | NA | 0.9315 | 0.882–1.00 | No | Naturally present in the environment |
| TTHMs [Total Trihalomethanes]–Stage 2 (ppb) | 2021 | 80 | NA | 37.475 | 19.9–56.4 | No | By-product of drinking water disinfection |
| Turbidity ² (NTU) | 2021 | TT | NA | 0.34 | 0.03–0.34 | No | Soil runoff |
| Turbidity (Lowest monthly percent of samples meeting limit) | 2021 | TT = 95% of samples meet the limit | NA | 99.4 | NA | No | Soil runoff |

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AL | MCLG | AMOUNT DETECTED (90TH %ILE) | SITES ABOVE AL/TOTAL SITES | VIOLATION | TYPICAL SOURCE |
|-----------------------------|--------------|-----|------|-----------------------------|----------------------------|-----------|--|
| Copper (ppm) | 2020 | 1.3 | 1.3 | 0.147 | 0/30 | No | Corrosion of household plumbing systems; Erosion of natural deposits |
| Lead (ppb) | 2020 | 15 | 0 | ND | 0/30 | No | Corrosion of household plumbing systems; Erosion of natural deposits |

UNREGULATED SUBSTANCES

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AMOUNT DETECTED | RANGE LOW-HIGH | TYPICAL SOURCE |
|-----------------------------|--------------|-----------------|----------------|--|
| Sodium (ppm) | 2021 | 13.2 | NA | Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines |

¹We met the treatment technique requirement for total organic carbon in 2021.

²Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

Definitions

90th %ile: The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

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

MCL (Maximum Contaminant Level): 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.

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.

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.

NA: Not applicable.

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

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