LANSING BWL

Lansing Board of Water & Light

2023 Annual Water Quality Report

Issued: April 1, 2024

Dear Customer,

We're pleased to present the 26th annual report summarizing the quality of the drinking water provided to you by the Lansing Board of Water & Light (BWL) for the 2023 calendar year. This Consumer Confidence Report is required by the Federal and State Safe Drinking Water Acts (SDWA). This report discusses the source of your tap water, the results of tests we regularly conduct to assure the quality of your water and additional information you may wish to know about your drinking water.

As a publicly owned utility, the BWL encourages public interest and participation in decisions affecting the community's drinking water. The BWL's Board of Commissioners meet on the fourth Tuesday of every other month at our REO Town Depot Facility, 1201 S. Washington Ave., Lansing. Meeting dates and times are published in advance and may be found on the BWL's website or by calling 517-702-6006. Our board meetings are open to the public.

If you have questions or need further information on BWL's water, please contact me at water@lbwl.com or 517-702-7059.

Sincerely,

Angie Goodman
Water Quality Administrator

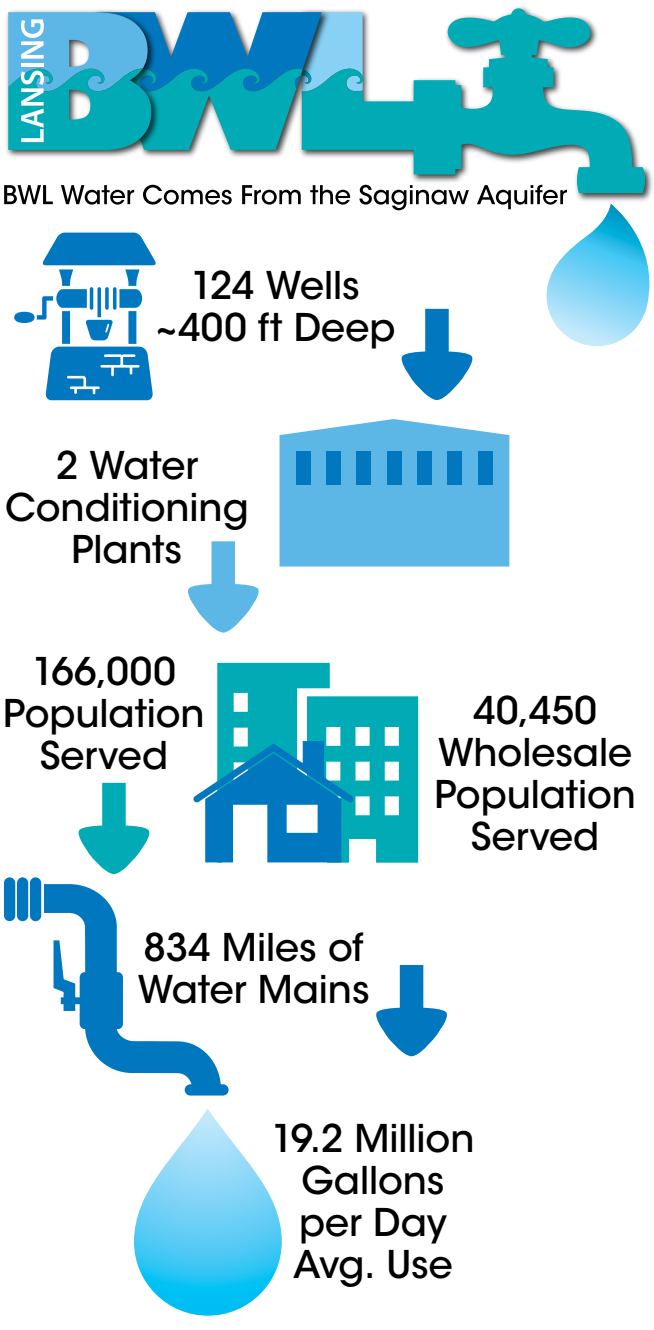
Charles Pollock Mural - John Dye Water Conditioning Plant
Picture depicts industrial uses of water.

The Bottom Line

Lansing Board of Water & Light continues to meet or exceed all water quality standards established by the U.S. Environmental Protection Agency (EPA) and the Michigan Department of Environment, Great Lakes, and Energy (EGLE)

About Us

The BWL was established in 1885 by a vote of the people of Lansing to fund a publicly owned utility to meet their need for adequate fire protection, proper sanitation and improved street lighting for the city. The Lansing community and the BWL service territory are fortunate to be located over the center of the Saginaw Aquifer, which has been called one of the finest natural sources of groundwater ever discovered.



Recognitions

Wayne Jernberg, Chair of the Michigan Section of the American Water Works Association (MI AWWA) Board, recognizes BWL Water Distribution Engineer Gary Wozniak, elected Chair of the MI-AWWA Board

As the incoming Chair of the MI-AWWA Board and chief volunteer of the Section, Gary provides strategic direction that supports the vision and acts as the key spokesperson of the Section.

Wayne Jernberg , Chair of the MI AWWA Board, presents Environmental Compliance Specialist III Kelly Gleason the 2023 Chuck Van Der Kolk Volunteer of the Year Award

The award recognizes an individual for the volunteer contributions to the Section through interaction with staff, Councils and members. She has also provided long-term exceptional service to the Section.

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Water Source

BWL drinking water comes from 124 groundwater wells approximately 400 feet deep. The source of this plentiful supply is an underground aquifer, which underlies much of the mid-Michigan region. Water from BWL wells is transported through large transmission mains to one of two water conditioning plants.

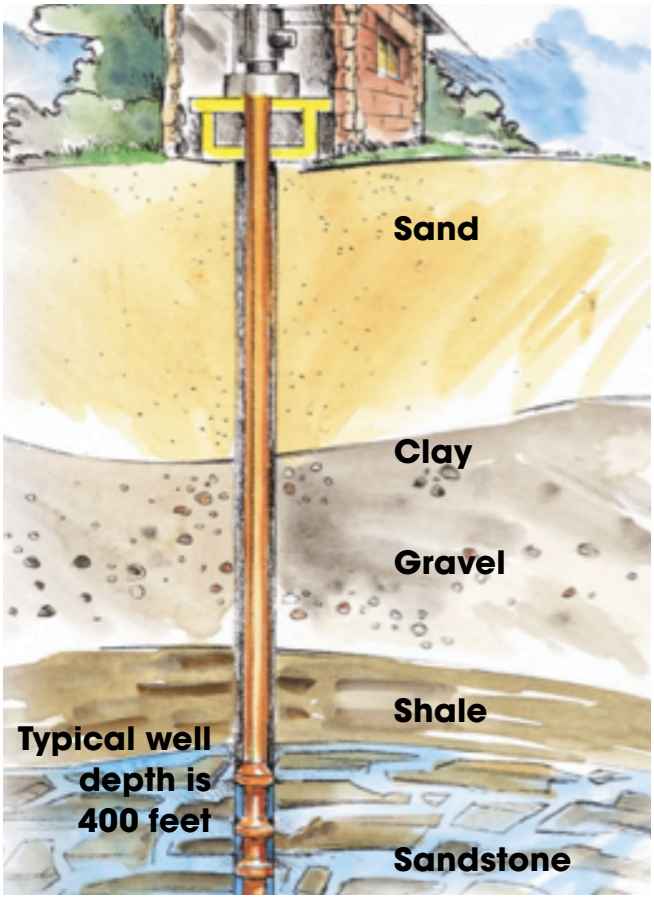
The plants soften the water by removing about 80 percent of the hardness. The softened water is then disinfected, fluoridated, treated with corrosion control, filtered and stored in reservoirs for distribution to customers. Lansing is one of the largest communities in the country to rely exclusively on groundwater to meet its drinking water requirements.

Protecting Your Water Supply

The BWL actively supports regional wellhead protection activities and has an award-winning Wellhead Protection Program. The United States Geological Survey has developed a regional aquifer computer model of the mid-Michigan area that provides important information about groundwater supplies. Major support for the project was provided through a state-administered wellhead protection grant to the BWL.

Lansing's drinking water source is largely protected from contamination or direct contact with surface waters by layers of clay and shale. There are areas at the surface, however, that directly contribute to the aquifer without the protection of clay and shale layers.

In 2003, EGLE assessed the vulnerability of the aquifer to human activities. Because there are several known and potential sources of contamination in and near the BWL's wellhead protection areas, the aquifer in this region has been assessed as "highly susceptible" to contamination. If you desire more information on this local Source Water Assessment, contact BWL's Water Quality Administrator at 517-702-7059 or water@lbwl.com.



Help Us Protect this Essential Resource

- **Waste Disposal**: Properly dispose of waste such as gasoline, oils, pesticides, paints and antifreeze. Toxic substances poured or spilled on the ground or down a drain can contaminate the water you drink.
- **Never Flush**: Many items containing toxins are non-biodegradable. They clog pipes, destroy protective bacteria and wreak havoc at the Wastewater Treatment Plant. For a complete list, visit epa.gov/septic.
- **Medications**: Prescription and over-the-counter drugs are NOT safe to flush. They break down in the water and wastewater treatment plants. Treatment plants are not equipped to remove them, and they end up back in our water supply. Visit Michigan.gov/egledrugdisposal to find a place to dispose of them properly.
- **Conserve**: Saving water reduces energy costs and helps keep more water in our lakes, rivers and groundwater supply.

How to Read the Water Quality Data Tables

BWL conducts frequent tests of our water and the following tables list those parameters and associated results of this testing. Drinking water may reasonably be expected to contain at least small amounts of some parameters and this does not necessarily indicate a health risk. These tables contain the name, the highest level allowed if regulated, the ideal goals for public health if established, the amount detected and the usual sources of such parameters. The tables don't list the hundreds of parameters for which the BWL tested but didn't detect a presence.

Unless otherwise noted, the data presented in this table is from testing done from January 1 – December 31, 2023. The BWL may reduce the monitoring frequency of certain parameters less often than once per year because the concentrations are not expected to vary significantly from year to year. **While all the data are representative of the BWL's water quality, some results are more than one year old.**

Key to Tables

AL	**Action Level:** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.
L1	**Level 1 Assessment:** A study of the water supply to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.
L2	**Level 2 Assessment:** 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.
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 the addition of a disinfectant is necessary for control of microbial contaminants.
MRDLG	**Maximum Residual Disinfectant Level Goal:** The level of a disinfectant in drinking water 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 contamination.
N/A	**Not Applicable**
ND	**Not detectable at testing limit**
pCi/L	**Picocuries per liter** (a measure of radioactivity)
PPB	**Parts Per Billion**, or micrograms per liter (ug/l) (equivalent to one penny in $10,000,000).
PPM	**Parts Per Million,** or milligrams per liter (mg/l) (equivalent to one penny in $10,000).

2023 Regulated Detected Contaminants Tables

Substances Measured in the Distribution System

Total Coliform Bacteria

As referenced by the EPA, total coliforms are a group of related bacteria that are (with few exceptions) not harmful to humans. A variety of bacteria, parasites and viruses, known as pathogens, can potentially cause health problems if humans ingest them. The EPA considers total coliforms a useful indicator of pathogens, such as E. coli, for drinking water. Total coliforms are used to determine the adequacy of water treatment and the integrity of the distribution system.
epa.gov/dwreginfo/revised-total-coliform-rule-and-total-coliform-rule

Microbial Contaminants	Number Detected	L1 Assessment Triggered?	L2 Assessment Triggered?	Major Sources	Violation?
Total Coliform Bacteria	0	No	No	Naturally present in the environment	No
E. coli	0	No	No	Human or animal fecal waste	No

Disinfectants and Disinfection Byproducts

The BWL adds chloramine to its water at the conditioning plants to protect against bacterial growth. Chloramine is used instead of other disinfectant options because it minimizes the number and level of chlorination byproducts, persists longer in the distribution system and leaves little or no unpleasant odor and taste. The following table lists the chloramine levels and disinfection byproducts created by the reaction of our chloramine treatment and naturally occurring organic compounds.

Regulated Contaminant	Unit	MCL	MCLG	Highest Average Detected Level	Range of Detected Levels	Major Sources	Violation?
Haloacetic Acids (HAA5)	PPB	60	N/A	3.0	1.4 to 4.5	Byproduct of drinking water disinfection	No
Total Trihalomethanes (TTHMs)	PPB	80	N/A	4.8	3.0 to 5.0	Byproduct of drinking water disinfection	No
Chloramines	PPM	MRDL 4	MRDLG 4	2.2	0.43 to 2.8	Water additive to control microbes	No

Substances Measured at the Water Conditioning Plant

Regulated Contaminant	Unit	MCL	MCLG	Highest Detected Level	Range	Date Tested	Major Sources	Violation?
Fluoride	PPM	4	4	0.62	<0.20 to 0.62	7/27/21	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.	No
Barium	PPM	2	2	0.030	0.025-0.030	7/27/21	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	No

Radioactive Contaminant	Unit	MCL	MCLG	Highest Detected Level	Range	Date Tested	Major Sources	Violation?
Gross Alpha	pCi/L	15	0	2.37	0.230-2.37	7/11/23	Erosion of natural deposits.	No
Radium 226 and 228	pCi/L	5	0	0.84±0.51	0.84±0.51 (Wise WCP)*	7/7/16	Erosion of natural deposits.	No

*DYE WCP was analyzed in 07/2022 and no radium 226 & 228 were detected.

Special Monitoring - Not Regulated

Special Monitoring (Not Regulated)	Unit	MCL	Highest Detected Level	Range	Date Tested	Major Sources	Violation?
Sodium	PPM	Not Established	110	84 to 110	7/11/23	Natural constituent of groundwater.	N/A

2023 Lead and Copper - Monitoring at Customers Tap

Contaminant Subject to AL	Unit	AL	MCLG	9 out of 10 Home Were Below a Level of:	# of Samples Above the Action Level:	Range of Individual Sample Results:	Major Sources	Violation?
Copper	PPM	*1.3 at 90th Percentile	1.3	0.0	0	0.0 to 0.0	Corrosion of household plumbing systems; erosion of natural deposits	No
Lead	PPB	** 15 at 90th Percentile	0	0	0	0 to 3	Lead service lines, corrosion of household plumbing including fittings & fixtures; erosion of natural deposits.	No

Water Quality Table Footnotes:
*9 out of 10 homes tested must show a concentration equal to or lower than 1.3 parts per million.
**9 out of 10 homes tested must show a concentration equal to or lower than 15 parts per billion
BWL'S NEXT COMPLIANCE ROUND OF LEAD AND COPPER SAMPLING IS JUNE 1 THROUGH SEPTEMBER 30, 2026

Unregulated Contaminants that Were Detected

Unregulated contaminants do not have an MCL or MCLG but are reported to and evaluated by EGLE and EPA. Monitoring helps the EPA determine areas of the country where these contaminants are being detected and may be the basis for developing future regulations. As our customers, you may request the results of our tests by contacting the BWL's Water Quality Administrator at 517-702-7059 or water@lbwl.com.

Unregulated Contaminants	Unit	Average Detected Level	Range	Date Tested	Major Source
Manganese	PPB	0.54	0.44 – 0.67	March & Aug 2020	Natural constituent of groundwater
HAA5	PPB	2.25	1.74-3.13	March & Aug 2020	Byproduct of disinfection
HAABr	PPB	0.31	0-0.46	March & Aug 2020	Byproduct of disinfection
HAA9	PPB	2.56	2.20-3.46	March & Aug 2020	Byproduct of disinfection

Contaminants of Emerging Concern

BWL monitors for Perfluorinated Compounds (PFAS), which include PFOS and PFOA, at the entry point to the distribution system annually and no PFAS has been detected.

BWL monitored for 1,4-Dioxane at the entry point to the distribution system in 2015 and it was detected at trace levels at the Dye Water Conditioning Plant (less than 0.2 ppb). 1,4-dioxane remains an unregulated contaminant. The Health Advisory Level (HAL) for 1,4-dioxane was set by the EPA in 2012 at 0.35 parts per billion (ppb or micrograms per liter). Concentrations of 1,4-dioxane at or below the health advisory level are not anticipated to cause adverse health effects over a lifetime of exposure. BWL continues to monitor 1,4-Dioxane quarterly at the Dye Water Conditioning Plant and annually at the Wise Water Conditioning Plant so they can respond accordingly if needed. Results have stayed consistent and well below the health advisory level.

For additional information on Contaminants of Emerging Concern, visit lbwl.com/contaminants-emerging-concern.

Fluoride

The raw water coming into the BWL's two water conditioning plants has a naturally occurring level of fluoride of approximately 0.35 ppm. The BWL adds fluoride to the water to bring it to the optimal level of 0.7 ppm recommended by the Centers for Disease Control and Prevention (CDC) and the U.S. Public Health Service and approved by the EPA.

"Because of its (fluoride) contribution to the large decline in cavities in the United States since the 1960s, CDC named community water fluoridation "one of 10 great public health achievements of the 20th century."

Further information about fluoride in drinking water, including specific information about infants, can be obtained from the CDC website at cdc.gov/fluoridation.

Typical Analysis of Conditioned Water

BWL performs over 240,000 water quality tests per year at the Water Conditioning Plants and over 16,000 at the BWL drinking water certified laboratory. This table represents the results of typical concentrations and ranges of other parameters present in your water supply. These results are within acceptable ranges. The results can vary depending on the wells that are in use, the time of the year and the different areas of the water distribution system. For a PDF version of this list, please visit lbwl.com/drinkingwater.

Parameter	Units	Your Water Results	
		Typical Concentration	Range
Calcium (as CaCO3)	PPM	60	40-70
Magnesium (as CaCO3)	PPM	42	33-58
Hardness* (as CaCO3)	PPM	98	86-130
Carbonate (as CaCO3)	PPM	22	17-27
Bicarbonate (as CaCO3)	PPM	16	13-23
Total Alkalinity (as CaCO3)	PPM	35	31-51
Iron at WCP*	PPM	0	0
Iron on Distribution*	PPM	0.1	0.1-0.28
Sulfate*	PPM	104	80-170
Chloride*	PPM	70	50-100
Phosphate, Ortho (as P)	PPM	0.3	0.1-0.6
pH	pH units	9.4	9.0-10
TDS	PPM	332	278-410
Conductivity*	uS/cm	580	450-730

*These parameters will typically be at the high end of the range during high demand periods in the summer months of June, July and August.

Tommy Travels to the Tap

Take a trip as a drop of water through the water conditioning process.

All BWL water comes from deep in the Saginaw Aquifer, approximately 400 feet underground and is largely protected from the surface. Let's learn how Tommy Tap Water - BWL's water drop mascot - gets from the aquifer to the tap.

Tommy is a drop of water flowing along in the aquifer who first gets pulled up to a water well by a pump and is sent through transmission mains to one of two BWL Water Conditioning Plants. While the water is safe and clean enough to drink as it is, BWL does some conditioning to ensure great quality water makes it to every customer.

Once Tommy makes it to the water conditioning plant, he's softened to remove the hardness picked up when he travels through the layers of rock underground. Hardness isn't dangerous, but it does cause the use of more soaps in the washer and more shampoo when washing hair. BWL removes about 85% of the hardness, which can be less corrosive on pipes than water that's 100% softened.

Next, chloramines are used to disinfect Tommy. Even though Tommy is good enough to drink from the start, we want him to stay that way until he gets to the tap. Chloramines produce very low disinfection byproducts, well below any health standards, and last longer in the water distribution system. Just enough fluoride is then added to bring the natural level from 0.35 parts per million (ppm or mg/L) to 0.70 ppm, which is the optimal level recommended by the U.S. Public Health Service to prevent dental cavities. Lastly, corrosion control is added to form a protective barrier to the pipes in the water distribution system, the service lines and plumbing in homes and buildings to reduce or completely prevent metals from entering the water. Everything used in the water conditioning plants are approved and safe for drinking and are routinely tested throughout the system to ensure the highest quality.

Water is then filtered to remove any excess particles and is sent to a reservoir for storage. Large pumps send Tommy out from the reservoirs through the mains, under the roads and into homes, schools, hospitals and businesses.

From there, Tommy is at the tap and ready to drink!

We want you to have a quality life and quality water, so grab your reusable bottle and fill it up with delicious BWL water today!

BWL "Got the Lead Out"

- In 2016, the last known active lead service line was removed from homes and businesses.
- We use a corrosion control additive to reduce potential exposure from plumbing materials in your home. To check success, we conduct testing every three years at homes in our service territory.
- While the BWL has taken measures to reduce exposure to lead, here are simple tips on how you can reduce your exposure as well:

You Can Get the Lead Out Too!

- Flush your pipes before drinking. If your water hasn't been used for more than six hours, run the tap water until it feels cold.
- Only use cold tap water for drinking, cooking and making baby formula, hot water is more likely to contain lead.
- Clean Faucet Aerators. Remove the aerators (screens) and clean them at least every six months.
- Check and Replace Your Plumbing Fixtures If Necessary. Older faucets, fittings and valves sold before 2014 may contain up to 8 percent lead, even if marked "lead-free."

Visit michigan.gov/mileadsafe
for more tips on how to reduce lead exposure.

Important Information About 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 water service lines and home plumbing. The BWL 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.

Infants and children who drink water containing lead could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

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 (800-426-4791) or at epa.gov/safewater/lead.

Arrangements can be made for water testing through your county health department. Each test costs about $20.

Identify Other Lead Sources In Your Home

Lead in homes can also come from sources other than water. If you live in a home built before 1978, you may want to have your paint tested for lead. **Consider contacting your doctor to have your children tested if you are concerned about lead exposure.**

For more information, visit: **epa.gov/safewater**

For more information about lead, please visit lbwl.com/water

General Health Information Provided by the EPA

To ensure tap water is safe to drink, the U.S. EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The United States Food and Drug Administration (FDA) 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 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).

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 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 or farming.
- **Pesticides and herbicides**, which may come from a variety of sources such as agriculture and residential uses.
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, 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.

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, and some elderly and infants can be particularly at risk of infections. These people should seek advice about drinking water from their healthcare providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection from microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

For more information about our water quality, please contact the BWL's Water Quality Administrator at 517-702-7059 or water@lbwl.com. Learn more about the BWL water system at lbwl.com/water. For more information about safe drinking water, visit epa.gov/safewater/.

PO Box 13007
Lansing, MI 48901
517-702-6006
lbwl.com

TOMMY TAP WATER SAYS, 'FILL, AT THE TAP DRINK, REPEAT'