



**Water Quality Report
Holland Board of Public Works**



2022

A LETTER FROM THE SUPERINTENDENT

Dear Neighbor,

At the Holland BPW Water Treatment Plant, we treat and filter water from Lake Michigan. This ensures healthy drinking water for our community and customers. Our skilled water staff provide excellence in water quality and use our water source responsibly.

We are pleased to report another year of our Water Treatment Plant surpassing all federal and state drinking water standards. **Holland BPW's Water Treatment Plant met all monitoring and reporting requirements for 2022.** Our Water Treatment Plant's state-certified laboratory and independent third-party laboratories perform over 60,000 tests per year. These rigorous tests ensure the highest quality water to our customers.



This report details the drinking water quality that we provided to you in the 2022 calendar year. In this report, you'll find details about where your water comes from and what it contains. You'll also learn how your water compares to the U.S. Environmental Protection Agency (EPA) and the Michigan Department of Environment, Great Lakes and Energy (EGLE) standards. You'll also learn more about what you can do to conserve water and protect our source, Lake Michigan.

EGLE and the EPA require us to test our water on a regular basis to ensure its safety. We are constantly striving to achieve water quality that is better than what regulations require and have adopted water quality goals that are more stringent than state and federal regulations. While this report contains data on contaminants detected, many other contaminants not listed here were analyzed for and not detected. We update this report annually and will keep you informed of any problems that may occur throughout the year as they happen.

Thank you for taking the time to learn more about your water and what you can do to help us protect this precious resource.

Sincerely,

Nathan Johnson
Water Treatment Plant Superintendent

LEARN MORE

This report is available at hollandbpw.com/water-quality-report and printed copies are also available at our Service Center, 625 Hastings Ave. We invite public participation in decisions that affect drinking water quality.

Your comments and participation are welcome at our public board meetings. Email publiccomment@hollandbpw.com or attend in person at the Holland BPW Service Center, 625 Hastings Ave, on the Monday between the first and second Wednesday of each month at 4:00pm.

- We recommend that you call to confirm the meeting time, date and location prior to arriving, or visit our website at hollandbpw.com for details about the meetings.
- For more information about your water or the contents of this report, please contact Holland Water Treatment Plant at (616) 355-1589.
- For more information about safe drinking water from EGLE, visit michigan.gov/egle/about/organization/drinking-water-and-environmental-health/drinking-water.
- For more information about safe drinking water from the US EPA, visit epa.gov/safewater.



**Este informe contiene información muy importante sobre su agua potable.
Tradúzcalo o hable con alguien que lo entienda bien.**

GET TO KNOW YOUR WATER SOURCE

Your Health

Some people may be more vulnerable to contaminants in drinking water than others. People with weakened immune systems have a higher risk of infection, including but not limited to the following groups:

- People receiving chemotherapy
- Organ transplant recipients
- People with HIV/AIDS or other immune systems disorders
- Some elderly individuals
- Infants

These groups should seek advice from their health care providers about drinking water. The EPA and the Center for Disease Control also have guidelines to lessen your risk of infection by microbial contaminants.

Contaminants

Drinking water, including bottled water, may contain at least small amounts of some contaminants. The presence of contaminants does not necessarily mean that water poses a health risk.

You can get more information about contaminants and potential health effects by calling the EPA's Safe Drinking Water hotline at (800) 426-4791 or visiting epa.gov/safewater.

Source Water Protections

In 2003, the State of Michigan performed an assessment on our source water. This assessment looked at Lake Michigan's susceptibility or the relative potential of contamination. The susceptibility rating is given on a scale from "very-low" to "very-high," with seven possible ratings. Ratings are based on geologic sensitivity, water chemistry and contamination sources. The State rated the Holland BPW's water intake as "moderately sensitive." It rated the water source itself as having a "moderately high" susceptibility to contamination.



The State identified 364 potential sources of contamination in the 175 square miles of watershed that could impact our water source. Their report further states, "Historically, the Holland Board of Public Works Water Treatment Plant has effectively treated this water source to meet drinking water standards. There have been no detections of synthetic or volatile organic contaminants in the system's raw water." You can get a copy of Holland BPW's full Source Water Assessment by calling (616) 355-1589.

To continue these efforts, Holland BPW has an award-winning Surface Water Intake Protection Plan (SWIPP) in place. The EPA and EGLE encourage this voluntary effort that outlines community-wide actions and efforts to protect drinking water sources. For more information about Holland BPW's SWIPP, please call the Water Treatment Plant at (616) 355-1589.

Sources of Drinking Water

Drinking water (both from the tap and bottled water) can come from rivers, lakes, streams, ponds, reservoirs, springs or wells.

Holland BPW's drinking water comes from Lake Michigan.

As water travels across land or underground, it dissolves naturally-occurring minerals and sometimes radioactive material. Water can also pick up contaminants that come from animal or human activity.

Contaminants that may be present in source water include:

- **Microbial contaminants**, such as viruses and bacteria. These contaminants may come from wastewater treatment plants, septic systems, agricultural livestock operations and wildlife.
- **Inorganic contaminants**, such as salts and metals. Some of these occur naturally. Salts and metals can also come from urban storm water runoff, industrial or domestic wastewater, oil and gas production, mining or farming.
- **Pesticides and herbicides**. These may come from a variety of sources including agriculture and residential uses.
- **Radioactive contaminants**. These can be naturally-occurring or the result of oil and gas production and mining activities.
- **Organic chemical contaminants**. These include synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production. Organic chemical contaminants can also come from gas stations, urban storm water runoff and septic systems.

To ensure that tap water is safe to drink, the EPA limits the levels of certain contaminants in public water systems. Similarly, Federal Food and Drug Administration regulations limit contaminants in bottled water to protect public health.

LEAD & COPPER

Pipes can be made of a variety of materials such as iron or plastic. In the past, some may have been made from galvanized metals or lead. **Holland BPW completed an inventory of water service lines in 2018. This inventory did not identify any service lines made completely out of lead pipe.** This inventory was based on information provided in construction records and plumbing inspections required when service lines were installed or replaced.

Most metals disintegrate as they corrode. However, corroding galvanized pipes pick up deposits that the water carries from other pipes in the system. Because these galvanized pipes once connected to lead goosenecks, lead deposits may have built up inside the galvanized pipe.

For this reason, Holland BPW has a program in place to replace all remaining galvanized lines in the system by the end of 2038. This time frame aligns with State of Michigan regulations and Holland BPW’s asset management plan. This replacement program includes:

1. The public section of the galvanized service lines from the water main to the property line.
2. The private section between the property line and the home, which is usually the responsibility of the homeowner.

Any galvanized piping inside the home is still the responsibility of the homeowner to replace as desired.

Quantity of Service Types in 2022

Service Description	City of Holland	Holland Township	Laketown Township	Park Township	Total
Copper, Plastic, and Other Non-Lead	7,701	3,935	1,283	654	13,573
Lead Service: Lead Pipe	0	0	0	0	0
Lead Service: Galvanized Pipe with Lead Gooseneck	1,814	0	0	27	1,841
Lead Service: Galvanized Pipe Previously Connected to Lead Gooseneck	1,677	4	0	12	1,693
Unknown Material	224	484	35	11	754
Total	11,416	4,423	1,318	704	17,861

Lead

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.

Holland BPW is responsible for providing high quality drinking water but cannot control the variety of materials used in household plumbing components. When water has been sitting in your home’s pipes 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 have a lead service line it is recommended that you run your water for at least 5 minutes to flush water from both your home plumbing and the lead service line.

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 epa.gov/safewater/lead.



Copper

Copper is an essential nutrient. However, drinking water with copper levels higher than the action level in a short amount of time could cause gastrointestinal distress. Some people who drink water with copper levels higher than the action level over many years could suffer liver or kidney damage. People with Wilson’s Disease or other conditions that limit the body’s ability to remove excess copper should talk to their health care provider.

PFAS

Per- and polyfluoroalkyl substances (PFAS), sometimes called PFCs, are a group of chemicals that are resistant to heat, water, and oil. The U.S. EPA has named PFAS as an emerging contaminant. For decades, PFAS have been used in industrial applications and consumer products and are still used today. Products with PFAS include carpeting, waterproof clothing, upholstery, food paper wrappings, fire-fighting foams, and metal plating. PFAS have also been found at low levels in both the environment and blood samples from the general U.S. population.

These chemicals are persistent, which means they do not break down in the environment. PFAS chemicals also bioaccumulate, meaning the amount of the chemical in a person's body builds up over time in their blood and organs.

Why Was Holland BPW's Source Water Tested for PFAS?

Holland BPW follows the EGLE standard compliance monitoring schedule for PFAS MCLs. In 2020, EGLE developed Maximum Contaminant Levels (MCLs) for seven PFAS compounds in Michigan. Even before EGLE developed PFAS MCLs, Holland BPW participated in EGLE-coordinated voluntary sampling in 2019. With health and safety at the core of our values, we saw this initiative as a chance to learn about our source water.

How Can PFAS Affect People's Health?

Although our understanding of these emerging contaminants constantly changes, higher levels of PFAS have the potential to cause negative health effects.

These include increased cholesterol, changes in hormones and the immune system, decreased fertility, and increased risk of some cancers. Epidemiological and laboratory studies in animal models support these links to health effects in humans.

If you are concerned about exposure to PFAS in your drinking water, please contact:

- Michigan Department of Health and Human Services Toxicology hotline at (800) 648-6942.
- Center for Disease Control and Prevention/ATSDR at [cdc.gov/cdc-info](https://www.cdc.gov/cdc-info) or (800) 232-4636.

Scientists are still learning about the health effects of exposure to PFAS, including exposure to mixtures.

What Other Ways Could I Be Exposed to PFOA, PFOS and Other PFAS Compounds?

PFAS are used in many consumer products, including:

- Food packaging such as fast-food wrappers and microwave popcorn bags
- Waterproof and stain-resistant fabrics such as outdoor clothing, upholstery, and carpeting
- Nonstick coatings on cookware
- Cleaning supplies including some soaps and shampoos

Exposure to PFAS can come from house dust, indoor and outdoor air, food, and drinking water. More research is needed to understand how people can be exposed to PFAS.

Who Can I Call if I Have Questions About PFAS in My Drinking Water?

If you have additional questions regarding this issue, you can reach the State of Michigan Environmental Assistance Center at (800) 662-9278.

Where Can I Learn More About PFAS?

For information on PFOA, PFOS, and other PFAS, including possible health outcomes, please visit the following websites:

- [epa.gov/pfas](https://www.epa.gov/pfas)
- [atsdr.cdc.gov/pfas](https://www.atsdr.cdc.gov/pfas)
- [michigan.gov/pfasresponse](https://www.michigan.gov/pfasresponse)



TERMS & ABBREVIATIONS USED

90th Percentile 90 percent of the samples taken were below the number listed.	AL Action Level. Samples with concentrations higher than an action level of a contaminant require treatment or other procedures a water system must follow.
Highest Local Running Average The highest average of a specific contaminant over the annual sampling period from a single sampling point. This measure is used in reporting TTHM and HAA5.	LHA Lifetime Health Advisory. Refers to a concentration that is not expected to cause negative health effects over a lifetime of consistent daily exposure at that level. This level is based on a 154 pound adult consuming two liters of water each day. LHAs are not enforceable standards, but are based on scientific studies and meant to serve as a guide.
MCL Maximum Contaminant Level. The highest level of a contaminant allowed in drinking water. MCLs are set above, but as close to an MCLG as possible.	MCLG Maximum Contaminant Level Goal. Below this level of a contaminant there is no known or expected risk to health.
MRDL Maximum Residual Disinfectant Level. The highest level of a disinfectant allowed in drinking water. Added disinfectant helps to control microbial contaminants.	MRDLG Maximum Residual Disinfectant Level Goal. Below this level of disinfectant there is no known or expected risk to health. MRDLGs do not negate the benefits of using disinfectants to control microbial contaminants.
N/A Not applicable.	NTU Nephelometric Turbidity Unit. A measure of water cloudiness.
ppb Parts per billion or micrograms per liter.	ppm Parts per million or milligrams per liter.
ppt Parts per trillion or nanograms per liter.	TT Treatment Technique. A required process intended to reduce contaminant levels in drinking water.
Unregulated Contaminants Contaminants that are suspected to be present in drinking water and do not have health-based standards set under the Safe Drinking Water Act (SDWA).	

WATER QUALITY DATA

The tables below list all the drinking water contaminants that we detected during the 2022 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The data presented in this table is from testing done January 1 - December 31, 2022.

Holland Water Treatment Plant Data for 2022 (WSSN 3190)

Regulated at Water Treatment Plant						
Substance (units)	EPA's MCL	EPA's MCLG	Highest Level Detected	Violations	Range of Detection	Typical Source of Contaminant
Fluoride (ppm)	4.00	4.00	0.78	None	0.07 - 0.78	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (ppm)	10	10	0.770	None	0.229 - 0.770	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Turbidity (NTU)	1.0	N/A	0.179	None	0.01 - 0.179	Cloudiness of water; Good indicator of the effectiveness of our filtration system
PFAS (ppt)	N/A	EGLE MCL Varies	All results for PFAS compounds were less than the EGLE minimum reporting limit of 2 ppt or not detected.			

Regulated at Customer's Tap						
Substance (units)	EPA's AL	EPA's MCLG	90th Percentile Detected	Violations	Range of Detection	Typical Source of Contaminant
Copper (ppm)	1.3	1.3	0	None	0.0 - 0.1	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	15	0.0	1	None	0 - 2	Lead service line, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits

Regulated in Distribution System (WSSN 3190)

Substance (units)	EPA's MCL	EPA's MCLG	Highest Level Detected	Highest Local Running Average	Violations	Range of Detection	Typical Source of Contaminant
Chlorine [Cl2] (ppm)	4.0 MRDL	4.0 MRDLG	1.71	1.22	None	0.05 - 1.71	Water additive used to control microbes
Total Trihalomethanes [TTHM] (ppb)	80	0	56.3	46.0	None	23.7 - 56.3	Byproduct of drinking water disinfection
Haloacetic Acids [HAA5] (ppb)	60	0	36.1	21.9	None	11.5 - 36.1	Byproduct of drinking water disinfection
Total Coliform Bacteria	<5%	0	0.0	N/A	None	0.0 - 0.0	Naturally present in the environment



Laketown Township

Regulated in Distribution System (WSSN 3747)

Substance (units)	EPA's MCL, TT	EPA's MCLG	Highest Level Detected	Highest Local Running Average	Violations	Range of Detection	Typical Source of Contaminant
Chlorine [Cl2] (ppm)	4.0 MRDL	4.0 MRDLG	1.55	1.21	None	0.94 - 1.55	Water additive used to control microbes
Total Trihalomethanes [TTHM] (ppb)	80	0	66.1	50.6	None	38.3 - 66.1	Byproduct of drinking water disinfection
Haloacetic Acids [HAA5] (ppb)	60	0	39.8	23.4	None	14.6 - 39.8	Byproduct of drinking water disinfection
Total Coliform Bacteria	TT	0	1.0	N/A	None	0.0 - 1.0	Naturally present in the environment

Regulated at Customer's Tap

Substance (units)	EPA's AL	EPA's MCLG	90th Percentile Detected	Violations	Range of Detection	Typical Source of Contaminant
Copper (ppm)	1.3	1.3	0.0	None	0.0 - 0.0	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	15	0	0.0	None	0.0 - 0.0	Lead service line, corrosion of household plumbing including fittings & fixtures; Erosion of natural deposits

Unregulated Contaminants

Substance (units)	EPA's MCL	EPA's MCLG	Highest Level Detected	Violations	Range of Detection	Typical Source of Contaminant
Sodium (ppm)	N/A	N/A	16.0	None	10.2 - 16	Erosion of natural deposits

These are contaminants for which the EPA has not established drinking water standards. The purpose of the unregulated contaminants monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water. Holland BPW performed additional testing for other unregulated contaminants; no detections were found. Results of these tests are available by contacting the Water Treatment Plant at (616) 355-1589.



Park Township

Regulated in Distribution System (WSSN 5203)

Substance (units)	EPA's MCL, TT	EPA's MCLG	Highest Level Detected	Highest Local Running Average	Violations	Range of Detection	Typical Source of Contaminant
Chlorine [Cl ₂] (ppm)	4.0 MRDL	4.0 MRDLG	1.61	0.96	None	0.20 - 1.61	Water additive used to control microbes
Total Trihalomethanes [TTHM] (ppb)	80	0	57.9	46.5	None	23.7 - 57.9	Byproduct of drinking water disinfection
Haloacetic Acids [HAA5] (ppb)	60	0	38.7	22.6	None	10.8 - 38.7	Byproduct of drinking water disinfection
Total Coliform Bacteria	TT	0	0.0	N/A	None	0.0 - 0.0	Naturally present in the environment

Regulated at Customer's Tap (Park Township)

Substance (units)	EPA's AL	EPA's MCLG	90th Percentile Detected	Violations	Range of Detection	Typical Source of Contaminant
Copper (ppm)	1.3	1.3	0.0	None	0.0 - 0.1	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	15	0	0.0	None	0 - 5	Lead service line, corrosion of household plumbing including fittings & fixtures; Erosion of natural deposits

Unregulated Contaminants

The 1996 Safe Drinking Water Act (SDWA) amendments require that once every five years the EPA must issue a new list of no more than 30 unregulated contaminants to be monitored by public water systems.

The fourth Unregulated Contaminant Monitoring Rule (UCMR 4) was published in the Federal Register on December 20, 2016. UCMR 4 required monitoring for 30 chemical

contaminants between 2018 and 2020 using analytical methods developed by EPA and consensus organizations. This monitoring provides a basis for future regulatory actions to protect public health.

For more information about UCMR4 visit [epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule](https://www.epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule).

Unregulated Contaminant Monitoring Rule 4 (UCMR4) 2020

Contaminant (ppb)	Min	Max	Average
HAA5	34.30	37.00	35.65
HAA6Br	13.40	13.90	13.65
HAA9	46.80	49.90	48.33
Chlorodibromoacetic	1.20	1.20	1.20
Dibromoacetic Acid	0.66	0.67	0.67
Dichloroacetic Acid	14.70	15.50	15.10
Trichloroacetic	18.90	20.50	19.70
Bromochloroacetic Acid	4.60	4.60	4.60
Bromodichloroacetic Acid	6.90	7.30	7.15
Manganese	0.26	0.26	0.26
Total Organic Carbon (TOC)	600	600	600



WATER CONSERVATION

Lake Michigan is a precious resource. We share this great resource with plants, animals, fish, and each other. Just as we share in the benefits of this Great Lake, we share in the responsibility of protecting and conserving our water source.

The following pages detail some easy ways you can conserve and protect our clean water.

Protect the Source

Protecting Lake Michigan starts with **protecting the watershed that feeds it.** A watershed refers to the entire system of natural water sources including rain and snowfall, groundwater, streams, rivers, lakes and oceans. When it rains, rainwater enters the ground. Groundwater flows into streams and rivers that feed lakes. Smaller bodies of water feed larger bodies of water.

Unnatural substances can also enter the watershed through the ground. Anything you spray or pour on the ground at home can reach Lake Michigan, our source of drinking water. **What you put on the ground matters.**

Follow these tips to help keep Lake Michigan clean:

- **Don't overuse** pesticides and fertilizers.
- **Don't dump** hazardous waste on the ground.
- Wash your car in a **commercial car wash** to reduce detergents and contaminants in storm water.
- **Pick up after your pet** on walks and in your backyard.
- Use **organic mulch** and **natural pesticides.**
- Keep your **grass cut longer** to reduce water runoff.

Conserve Water

Using less water and using water more efficiently also protects our water source. Outdoor water use, primarily for sprinkling during the hot summer months, can create especially high demand at our Water Treatment Plant. EGLE requires our Water Treatment Plant to satisfy the maximum daily water demand, at any time, every day of the year. During the few days out of the year that are the hottest and driest, peak water demand can reach **30 million gallons per day**, which is approximately 80% of the system's capacity. By comparison, average daily demand on the water plant is **13 to 14 million gallons.**

Holland BPW must have adequate capacity at its Water Treatment Plant to supply the system peak day demand. If we are successful at reducing peak day demand by being more efficient and smart about water during hot dry summer periods, we will be able to postpone or avoid expensive plant capacity expansion projects. Not only will efforts to reduce peak day demand save money and keep water rates lower, conserving water is good for environmental stewardship and conserving critical resources.

Here are a few ways you can make a difference and help us steward our water resources responsibly:

- **Fix leaks** to avoid water waste
- **Turn off the tap** when you brush your teeth.
- Run dishwashers and washing machines **with full loads.**
- Water the lawn in the **early morning or at night** to reduce the amount of evaporated water.
- Use **rain gardens and native landscaping** in place of a traditional lawn.
- Choose **Water Sense and Energy Star products** when replacing plumbing fixtures and appliances. These labels make it easy to identify products that are certified to be efficient.



UPGRADING OUR WATER INFRASTRUCTURE

Our Infrastructure

In 2019, we performed a reliability study of our water system. Results of the study showed a need for a second transmission water main on the north side of Lake Macatawa. Transmission mains are large-diameter water mains that move water from our Water Treatment Plant to smaller water mains. These smaller water mains then distribute the water to our customers. Redundancy makes sure that our service is reliable. Having a second transmission main creates more than one path, preventing service interruption if an issue occurs.

In response to the study results, we installed a new pipeline to the north of the existing water main. This main runs along Lakewood Blvd in Park and Holland Townships and improves the reliability of our transmission system.



Photo courtesy of Prein & Newhof. Lakewood water main construction during the summer of 2022.



Future Improvements

Holland BPW provides retail water service to the City of Holland, and some sections of Park, Laketown, Fillmore and Holland Charter Townships. We also provide wholesale water service to the City of Zeeland, and by extension, Zeeland Township. These customers usually receive water from the Holland Water Treatment Plant. However, we connect with Holland Township's water system and the Wyoming Water Treatment Plant for emergency service. That way if either our Water Treatment Plant or Wyoming's Water Treatment Plant were to experience an issue, we can share and continue to provide water for all of our customers.

As our community has grown, so have our needs for essential services like electricity and drinking water. Our drinking Water Treatment Plant is nearing 70 years of service. To continue providing the highest quality water services, we anticipate updates to chemical storage at our Water Treatment Plant along with water main replacements and upgrades to our water distribution system. Included in those improvements are the lead/galvanized service line replacements for our customers.

We look forward to continuing our careful planning for the future of Holland to reliably provide essential water services to all.



A close-up photograph of a person's hand holding a clear glass filled with water. The person's face is blurred in the background, and the lighting is soft and warm. The glass is held in the center of the frame, and the water inside is crystal clear.

Holland Water Quality Report 2022

Holland Water Treatment Plant
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(616) 355-1589

