



ANNUAL WATER QUALITY REPORT

Reporting Year 2023

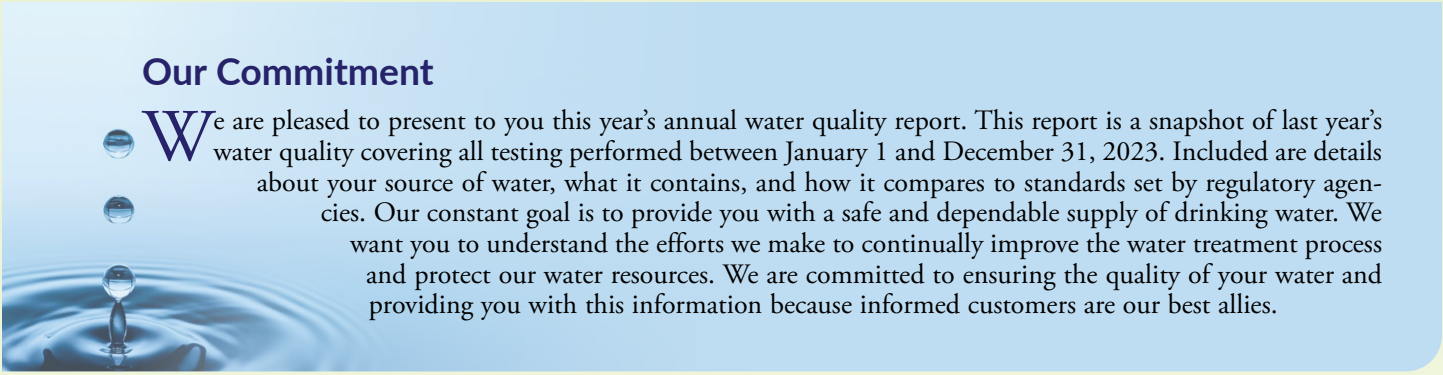


Presented By
**Hamilton Public
Water System**



PWS ID#: OH0904012

Our Commitment



We are pleased to present to you this year's annual water quality report. This report is a snapshot of last year's water quality covering all testing performed between January 1 and December 31, 2023. Included are details about your source of water, what it contains, and how it compares to standards set by regulatory agencies. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water and providing you with this information because informed customers are our best allies.

Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through them.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen and disinfectant levels and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at that time. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use and avoid using hot water to prevent sediment accumulation in your hot water tank. Please contact us if you have any questions or if you would like more information on our water main flushing schedule.

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. Environmental Protection Agency (EPA)/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by *cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



Public Meetings

We encourage public interest and participation in our community's future. City council meetings are held the second and fourth Wednesday of the month at 6:00 p.m. in Council Chambers, 345 High Street. The Public Utilities Commission meets generally the second Thursday of the month at 1:15 p.m. in the conference room at the City Garage, 2210 South Erie Boulevard. The public is welcome.

Protecting Your Water

Bacteria are a natural and important part of our world. There are around 40 trillion bacteria living in each of us; without them, we would not be able to live healthy lives. Coliform bacteria are common in the environment and generally not harmful themselves. The presence of this bacterial form in drinking water is a concern, however, because it indicates that the water may be contaminated with other organisms that can cause disease.

In 2016 the U.S. EPA passed a regulation called the Revised Total Coliform Rule, which requires water systems to take additional steps to ensure the integrity of the drinking water distribution system by monitoring for the presence of bacteria like total coliform and *E. coli*. The rule requires more stringent standards than the previous regulation, and it requires water systems that may be vulnerable to contamination to have procedures in place that will minimize the incidence of contamination. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment and correct any problems quickly. The U.S. EPA anticipates greater public health protection under this regulation due to its more preventive approach to identifying and fixing problems that may affect public health.

Though we are fortunate in having the highest-quality drinking water, our goal is to eliminate all potential pathways of contamination into our distribution system, and this requirement helps us accomplish that goal.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call John Bui, Manager of Water and Wastewater Operations, at (513) 785-7426.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting 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.

Lead in Home Plumbing

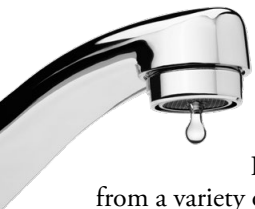
If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. We are responsible for providing high-quality drinking water, but 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. A list of laboratories certified in the state of Ohio to test for lead may be found at <http://www.epa.ohio.gov/ddagw> or by calling (614) 644-2752. 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.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from our deep wells and sent to the aerators, which allows the dissolved gas to release in the atmosphere and oxidizes any soluble metals, such as iron and manganese. The water then goes to the solids contact clarifiers, where lime (calcium oxide, or CaO) is added. Flocculation occurs in the center zone where the lime slurry contacts the raw water. This flocculation zone is baffled and has a diameter of 21 feet.

The water then passes upward through a sludge blanket, where the agglomerated floc particles become heavier and fall to the bottom of the basin to form sludge. A large mixer circulates the water and sludge to maintain the reaction. The heavy solids settle to the bottom, and the clear water rises to the top of the basins, where it is collected through a series of radial launders.

At this point, the water flows to the recarbonation basins, where carbon dioxide is added to adjust pH. After that, the water is filtered through layers of anthracite coal and silicate sand. As smaller suspended particles are removed, turbidity disappears, and clear water collects in the underdrain system and flows to the clearwell, where we add chlorine dioxide for disinfection and fluoride to prevent tooth decay in children. Finally, water is pumped out to our distribution system and storage reservoirs via large-capacity, high-service pumps.



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.

Note that we have a current, unconditioned license to operate our water system.

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]	South Plant		North Plant		Distribution System (North & South Plants)		VIOLATION	TYPICAL SOURCE
				AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH		
Alpha Emitters (pCi/L)	2020	15	0	2.8 +/-1.99	NA	0.162 +/-1.24	NA	NA	NA	No	Erosion of natural deposits
Antimony (ppb)	2020	6	6	NA	NA	0.55	NA	NA	NA	No	Discharge from petroleum refineries; Fire retardants; Ceramics; Electronics; Solder
Barium (ppm)	2023	2	2	0.0527	NA	0.0335	NA	NA	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine Dioxide (ppb)	2023	[800]	[800]	660	30–660	540	160–540	NA	NA	No	Water additive used to control microbes
Chlorite (ppm)	2023	1	0.8	0.58	0.46–0.60	0.61	0.19–0.66	NA	NA	No	By-product of drinking water disinfection
Combined Radium (pCi/L)	2020	5	0	0.673 +/-0.47	NA	0.152 +/-0.297	NA	NA	NA	No	Erosion of natural deposits
Cyanide (ppb)	2023	200	200	NA	NA	10	NA	NA	NA	No	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories
Fluoride (ppm)	2023	4	4	0.94	0.31–1.18	0.89 ¹	0.38–1.08 ¹	NA	NA	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (ppm)	2023	10	10	0.91	NA	0.33	NA	NA	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

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

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	South Plant			North Plant			Distribution System (North & South Plants)			VIOLATION	TYPICAL SOURCE
				AMOUNT DETECTED (90TH %ILE)	RANGE LOW-HIGH	SITES ABOVE AL/TOTAL SITES	AMOUNT DETECTED (90TH %ILE)	RANGE LOW-HIGH	SITES ABOVE AL/TOTAL SITES	AMOUNT DETECTED (90TH %ILE)	RANGE LOW-HIGH	SITES ABOVE AL/TOTAL SITES		
Copper (ppm)	2021	1.3	1.3	NA	NA	/	NA	NA	/	0.0200	ND–0.0467	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2021	15	0	NA	NA	/	NA	NA	/	0.005	ND–1.0116	0/30	No	Lead service lines; Corrosion of household plumbing systems, including fittings and fixtures; Erosion of natural deposits



UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	South Plant		North Plant		Distribution System (North & South Plants)		TYPICAL SOURCE
		AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	
Chloroform (ppb)	2023	NA	NA	NA	NA	0.09	0.08–0.09	By-product of drinking water chlorination
Manganese (ppm)	2018	<0.0004	NA	0.0029	NA	NA	NA	Erosion of natural deposits; Certain manufacturing processes
Sulfate (ppm)	2020	NA	NA	NA	NA	55.6	NA	Naturally present in soil and rocks; Certain industrial processes, Sewage treatment; Landfills; Industrial waste sites

¹ Sampled in 2022.

Source Water Assessment

Ohio EPA completed a study of Hamilton's North and South Wellfields to determine susceptibility to contamination. According to this study, the aquifer that supplies water to Hamilton's wells has a high susceptibility to contamination. This determination is based on (1) lack of a protective layer of clay; (2) shallow depth of the aquifer; and (3) the presence of significant potential contaminant sources in the protection area.

To help ensure groundwater quality, the city is a member of a comprehensive source water protection program called the Hamilton to New Baltimore Groundwater Consortium that includes education, source control strategies, groundwater monitoring, and a contingency and emergency response plan. This program was developed in conjunction with the City of Cincinnati, City of Fairfield, and other local groundwater producers. We are known nationally for our protective strategies, youth and adult education outreach, and raising awareness about protecting our water source.

For more information on the city's source water protection program and the source water assessment report, please contact the groundwater consortium manager, Tim McLelland, at (513) 785-2464, or visit the Groundwater Consortium website at www.gwconsortium.org.

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.

pCi/L (picocuries per liter): A measure of radioactivity.

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).

Where Does My Water Come From?

The City of Hamilton water customers are fortunate because we enjoy an abundant water supply from the Great Miami Buried Valley Aquifer. The city meets 100 percent of customer drinking water needs with this groundwater. The sand-and-gravel aquifer was formed by glaciers covering Ohio as recently as 10,000 years ago and serves as the primary source of drinking water for many communities in southwest Ohio. It holds about 1.5 trillion gallons and is constantly replenished from various sources. Our water is pulled from about 210 feet below the surface. It has traveled for miles underground, naturally filtered by sand and gravel.

Hamilton pumps groundwater to the North and South Water Treatment Plants using large-capacity wells located in Hamilton and the City of Fairfield. The North Water Treatment Plant was constructed in 1935, and the South Water Treatment Plant was constructed in 1953. Combined, our treatment facilities provided roughly 5.68 billion gallons of clean drinking water in 2023.

