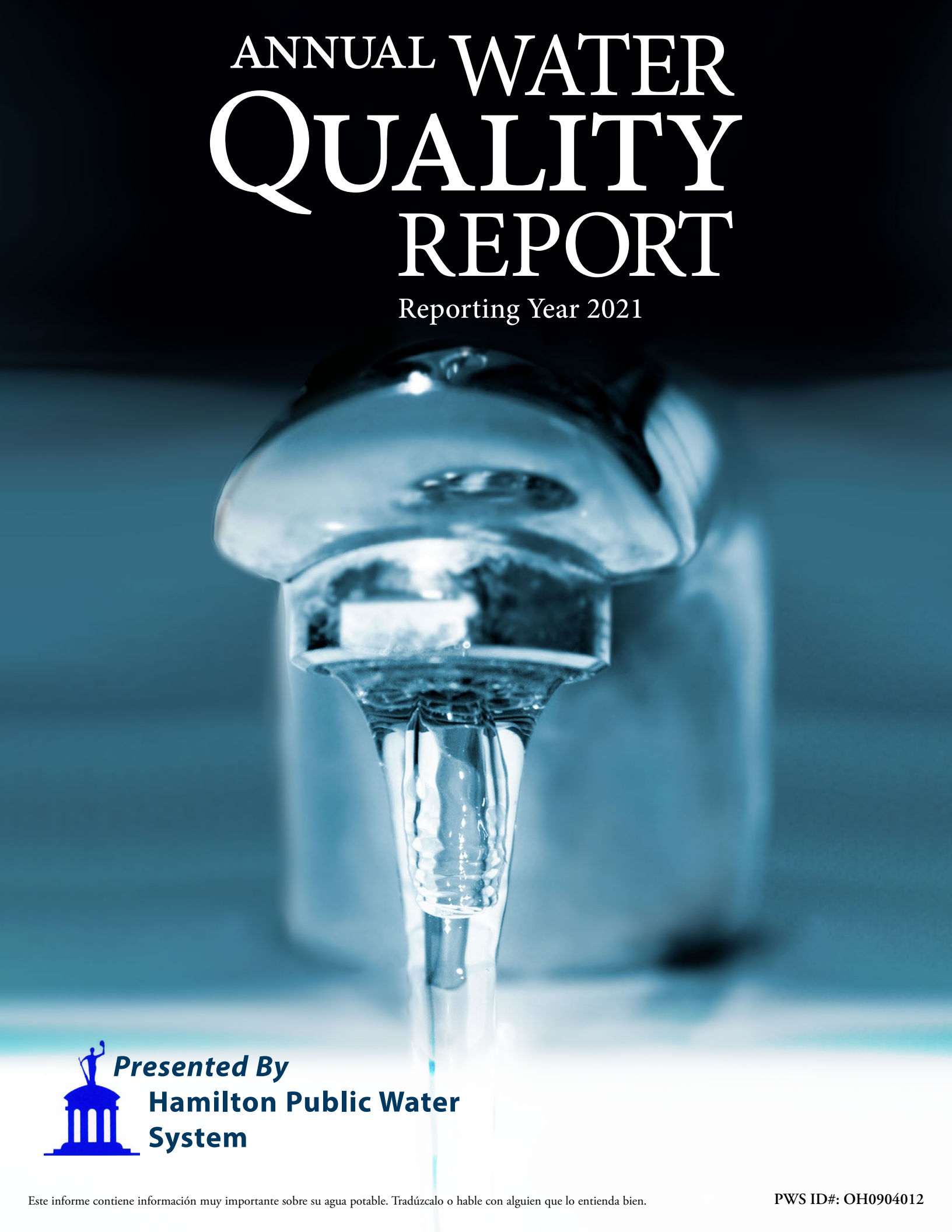
ANNUAL WATER QUALITY REPORT

Reporting Year 2021



Presented By

Hamilton Public Water System

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

PWS ID#: OH0904012

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.

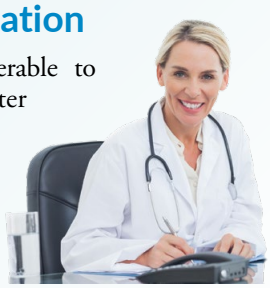
Water Treatment Process

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 be released in the atmosphere and oxidizes any soluble metals, such as iron and manganese, that are present in the water. The water then goes to the solids contact clarifiers, where lime (calcium oxide, 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, forming sludge. A large mixer circulates the water and sludge, maintaining 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.

> "When the well is dry, we know the worth of water."
>
> —*Benjamin Franklin*

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 under-drain 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 to our distribution system and storage reservoirs via large-capacity, high-service pumps.

Important Health Information



Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those 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.

What Are PFAS?

Per- and polyfluoroalkyl substances (PFAS) are a group of manufactured chemicals used worldwide since the 1950s to make fluoropolymer coatings and products that resist heat, oil, stains, grease, and water. During production and use, PFAS can migrate into the soil, water, and air. Most PFAS do not break down; they remain in the environment, ultimately finding their way into drinking water. Because of their widespread use and their persistence in the environment, PFAS are found all over the world at low levels. Some PFAS can build up in people and animals with repeated exposure over time.

The most commonly studied PFAS are perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS). PFOA and PFOS have been phased out of production and use in the United States, but other countries may still manufacture and use them.

Some products that may contain PFAS include:

- Some grease-resistant paper, fast food containers/wrappers, microwave popcorn bags, pizza boxes
- Nonstick cookware
- Stain-resistant coatings used on carpets, upholstery, and other fabrics
- Water-resistant clothing
- Personal care products (shampoo, dental floss) and cosmetics (nail polish, eye makeup)
- Cleaning products
- Paints, varnishes, and sealants

Even though recent efforts to remove PFAS have reduced the likelihood of exposure, some products may still contain them. If you have questions or concerns about products you use in your home, contact the Consumer Product Safety Commission at (800) 638-2772. For a more detailed discussion on PFAS, please visit https://www.atsdr.cdc.gov/pfas/index.html.

Questions?

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

Community Participation

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

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 that 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.

Source Water Assessment

Ohio EPA completed a study of Hamilton's North and South Wellfields sources of drinking water 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) the lack of a protective layer of clay; (2) the shallow depth of the aquifer; and (3) the presence of significant potential contaminant sources in the protection area.

The City of Hamilton meets 100 percent of customer drinking water needs with groundwater pumped from the Great Miami Buried Valley Aquifer. This sand-and-gravel aquifer was formed by glaciers covering Ohio as recently as 10,000 years ago. It serves as the primary source of drinking water for many communities in southwest Ohio. Hamilton pumps groundwater to the North and South Water Treatment Plants using large-capacity wells located in Hamilton and the City of Fairfield.

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, which includes education, source control strategies, groundwater monitoring, and a contingency and emergency response plan. This program was developed in conjunction with the City of Fairfield, the City of Cincinnati, 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, please contact the Groundwater Consortium manager, Tim McLelland, at (513) 785-2464 or visit gwconsortium.org.

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.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. Also, the water we deliver must meet specific health standards. Here, we show only 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 detected contaminants below their respective maximum allowed levels.

The state recommends monitoring for certain substances less often 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.

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

REGULATED SUBSTANCES

				South Plant		North Plant			
SUBSTANCE (UNIT OF MEASURE)	**YEAR SAMPLED**	**MCL [MRDL]**	**MCLG [MRDLG]**	**AMOUNT DETECTED**	**RANGE LOW-HIGH**	**AMOUNT DETECTED**	**RANGE LOW-HIGH**	**VIOLATION**	**TYPICAL SOURCE**
Alpha Emitters (pCi/L)	2020	15	0	2.8 +/- 1.99	NA	0.162 +/- 1.24	NA	No	Erosion of natural deposits
Antimony (ppb)	2020	6	6	NA	NA	0.55	NA	No	Discharge from petroleum refineries; Fire retardants; Ceramics; Electronics; Solder
Barium (ppm)	2020	2	2	0.0657	NA	0.0314	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine Dioxide (ppb)	2021	[800]	[800]	540	100–540	560[1]	160–560[1]	No	Water additive used to control microbes
Chlorite (ppm)	2021	1	0.8	0.56	0.36–0.59	0.54[2]	0.04–0.64[2]	No	By-product of drinking water disinfection
Combined Radium (pCi/L)	2020	5	0	0.673 +/- 0.47	NA	0.152 +/- 0.297	NA	No	Erosion of natural deposits
Fluoride (ppm)	2021	4	4	0.97	0.11–1.15	0.86	0.48–1.10	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (ppm)	2021	10	10	0.91	NA	0.13	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

Distribution System (North & South Plants)

SUBSTANCE (UNIT OF MEASURE)	**YEAR SAMPLED**	**MCL [MRDL]**	**MCLG [MRDLG]**	**AMOUNT DETECTED**	**RANGE LOW-HIGH**	**VIOLATION**	**TYPICAL SOURCE**
Total Coliform Bacteria (positive samples)	2021	TT	NA	4	NA	No	Naturally present in the environment

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 that, if exceeded, triggers treatment or other requirements that 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).

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

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)	RANGE LOW-HIGH	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2021	1.3	1.3	0.0200	ND–0.0467	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2021	15	0	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

		South Plant		North Plant		Distribution System (North & South Plants)		
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Dibromoacetic Acid (ppm)	2020	NA	NA	NA	NA	0.001	NA	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 2018.
[2] Sampled in 2020.

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. Our water is pulled from about 210 feet below the surface. This groundwater has traveled for miles underground, naturally filtered by the deep layers of sand and gravel. The North Water Treatment Plant was constructed in 1935; the South Water Treatment Plant was constructed in 1953. Both draw from this underground water supply. The aquifer holds about 1.5 trillion gallons and is constantly being replenished from various sources. Combined, our treatment facilities provided roughly 5.45 billion gallons of clean drinking water in 2021.