

ANNUAL WATER QUALITY REPORT

Reporting Year 2022



Presented By



Our Mission Continues

Once again, the City of Delaware Water Treatment Plant is proud to present our annual water quality report. This report, mandated by the U.S. Environmental Protection Agency (U.S. EPA) and funded by the city, covers the results of all required testing performed between January 1 and December 31, 2022.

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 our 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.

If you have any questions or would like to discuss the city's water system in more detail, we encourage you to email Blake Jordan at bjordan@delawareohio.net.

Sincerely,

Blake Jordan, P.E., Director of Public Utilities, City of Delaware

Tom Hinson, Class IV Operator of Record and Plant Manager



Where Does My Water Come From?

The City of Delaware's primary source of water is the Olentangy River. The city has the capability to blend this river water with groundwater from wells drilled to more than 200 feet deep. These wells are located on the plant premises and a wellfield on Penry Road, about two miles north of the water plant. The water treatment facility treated and provided more than 1.1 billion gallons of potable water from these combined sources to the City of Delaware during 2022, averaging 3.25 million gallons per day.

“Thousands have lived without love, not one without water.”

—W.H. Auden

Public Meetings

You are invited to participate in our public forum and voice your concerns about your drinking water. Delaware City Council meets twice a month, and the city's Public Works/Public Utilities Committee meets quarterly. Feel free to call (740) 203-1010 for a schedule of meeting times or visit www.delawareohio.net.



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>.



How Long Can I Store Drinking Water?

The disinfectant in drinking water will eventually dissipate even in a closed container. If that container housed bacteria prior to filling up with the tap water the bacteria may continue to grow once the disinfectant has dissipated. Some experts believe that water could be stored up to six months before needing to be replaced. Refrigeration will help slow the bacterial growth.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call the City of Delaware, Department of Public Utilities Office, at (740) 203-1900. For information concerning your water bill, please call (740) 203-1250.

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.

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 <http://bit.ly/3Z5AMm8>.



Test Results

During the past year, we have taken hundreds of samples to determine the presence of any radiological, inorganic, volatile, organic, or synthetic contaminants. The following tables show the contaminants that were detected in the water during 2022. 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]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Atrazine (ppb)	2022	3	3	0.12	ND–0.36	No	Runoff from herbicide used on row crops
Barium (ppm)	2022	2	2	0.013	0.013–0.013	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2022	[4]	[4]	1.9	1.5–2.2	No	Water additive used to control microbes
Haloacetic Acids [HAAs]–Stage 2 (ppb)	2022	60	NA	8.13	ND–18.6	No	By-product of drinking water disinfection
Nitrate (ppm)	2022	10	10	1.00	0.13–3.42	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Total Organic Carbon [TOC] (ppm)	2022	TT ²	NA	0.2	ND–1.0	No	Naturally present in the environment
TTHMs [total trihalomethanes]–Stage 2 (ppb)	2022	80	NA	18.55	7.90–35.90	No	By-product of drinking water disinfection
Turbidity ¹ (NTU)	2022	TT	NA	0.154	0.019–0.154	No	Soil runoff
Turbidity (lowest monthly percent of samples meeting limit)	2022	TT = 95% of samples meet the limit	NA	100	NA	No	Soil runoff
Xylenes (ppm)	2022	10	10	ND	NA	No	Discharge from petroleum factories; Discharge from chemical factories

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	0.092	0.033–0.110	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2021	15	0	ND	ND–6.6	0/31	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Fluoride (ppm)	2022	2.0	NA	1.03	0.90–1.18	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
pH (units)	2022	6.5–8.5	NA	8.1	7.9–8.3	No	Naturally occurring

UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Total Alkalinity (ppm)	2022	86	51–115	NA
Hardness (ppm)	2022	121	99–162	NA

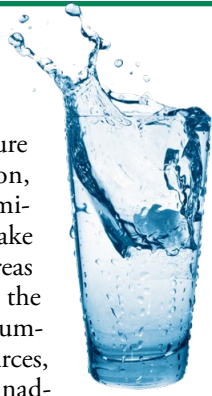
¹ Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

² The value reported under Amount Detected for TOC is the lowest ratio of percentage of TOC actually removed to percentage of TOC required to be removed. A value of greater than 1 indicates that the water system is in compliance with TOC removal requirements. A value of less than 1 indicates a violation of the TOC removal requirements.

Source Water Assessment

Surface waters are by their nature susceptible to contamination, and numerous potential contaminant sources along their banks make them more so. The protection areas around the Olentangy River and the wellfields include a moderate number of potential contaminant sources, including agricultural runoff, inadequate septic systems, leaking underground storage tanks, and road and rail bridge crossings. As a result, the drinking water supplied to the City of Delaware's public water system is considered to have a high susceptibility to contamination.

Historically, the Delaware public water system has effectively treated this source water to meet drinking water quality standards. The potential for water quality impacts can be further decreased by implementing measures to protect the Olentangy River and the local aquifer. More detailed information is provided in the City of Delaware's Drinking Water Assessment Report, which can be obtained by calling the Public Utilities Department at (740) 203-1900.



Water Treatment Process

The treatment process consists of a series of steps. Since the city utilizes groundwater and surface water, these two raw sources are treated separately. The raw surface water is drawn from Olentangy River and sent to a mixing tank, where aluminum chlorohydrate (ACH) is added, which causes small particles (called floc) to adhere to one another, making them heavy enough to settle into a basin from which the sediment is removed. The surface water then travels through ultrafiltration (UF) membranes to remove smaller suspended particles, followed by passage through nanofiltration (NF) membranes. Pristine water emerges after these treatment processes. The raw groundwater is drawn from the city's 200-foot-deep wells and sent through pressure filters where iron and manganese are removed. The groundwater then travels through separate NF membranes, from which comparable pristine water emerges.

Water from these two separate treatment processes then combines prior to entering the finished water clear well, where chlorine is added as a precaution against any bacteria that may still be present. (We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising the taste). Finally, fluoride (to prevent tooth decay) and a corrosion inhibitor (to protect distribution system pipes) are added before the water is pumped to the water distribution system, elevated water towers, and your home or business.

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).

removal ratio: A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

SMCL (Secondary Maximum Contaminant Level): These standards are developed to protect aesthetic qualities of drinking water and are not health based.

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

