

ANNUAL WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2019



Presented By



Our Dedication

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 and funded by the city, covers all required testing results between January 1 and December 31, 2019.

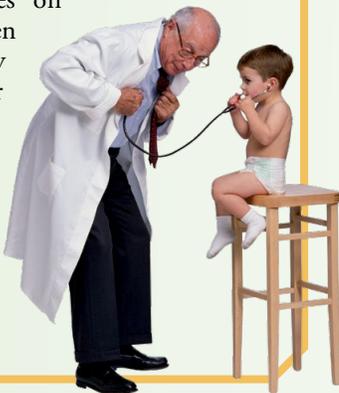
Over the years, water plant staff have dedicated themselves to supplying drinking water that meets or exceeds all state and federal standards. The city has accomplished this goal by continually striving to adopt better methods for delivering the best-quality drinking water possible. As regulations and drinking water standards change, it is the city's commitment to our residents to incorporate these changes systemwide in an expeditious and cost-effective manner. As new drinking water challenges emerge, we will be vigilant in maintaining our objective of providing high-quality drinking water at an affordable price.

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

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

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>.



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.

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 wells, drilled to more than 200 feet deep, located on the plant premises and a well field located 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 to the City of Delaware during 2019, at an average of 3 million gallons per day.



Water Treatment Process

The treatment process consists of a series of steps. Since the city utilizes groundwater and surface water for raw 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 is added. This 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 membranes to remove smaller suspended particles, followed by nanofiltration 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 nanofiltration membranes, emerging as comparable pristine water.

These separate treatment processes then combine prior to the finished water clear well, where chlorine is then 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 into the water distribution system, elevated water towers, and your home or business.

“ We remain vigilant in delivering the best-quality drinking water ”

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 well fields 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.

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.



Community Participation

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.

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.





BY THE NUMBERS

The number of gallons of water produced daily by public water systems in the U.S.

34
BILLION

1
MILLION The number of miles of drinking water distribution mains in the U.S.

The amount of money spent annually on maintaining the public water infrastructure in the U.S.

135
BILLION

300
MILLION The number of Americans who receive water from a public water system.

The age in years of the world's oldest water found in a mine at a depth of nearly two miles.

2
BILLION



Test Results

We are very pleased to announce that your drinking water meets or exceeds all federal and state EPA requirements.

During the past year, we have taken hundreds of water samples to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The following tables show the contaminants that were detected in the water during 2019. The state allows us to monitor for certain substances less often than once per year if the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year the sample was taken.

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.

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

We participated in the fourth stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR4) program by performing additional tests on our drinking water. UCMR4 sampling benefits the environment and public health by providing the U.S. EPA with data on the occurrence of contaminants suspected to be in drinking water in order to determine if the U.S. EPA needs to introduce new regulatory standards to improve drinking water quality. Unregulated contaminant monitoring data are available to the public, so please feel free to contact us if you are interested in obtaining that information. If you would like more information on the U.S. EPA's Unregulated Contaminants Monitoring Rule, please call the Safe Water Hotline at (800) 426-4791.

REGULATED SUBSTANCES

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | MCL [MRDL] | MCLG [MRDLG] | AMOUNT DETECTED | RANGE LOW-HIGH | VIOLATION | TYPICAL SOURCE |
|--|-----------------|------------------------------------|-----------------|--------------------|-------------------|-----------|---|
| Atrazine (ppb) | 2019 | 3 | 3 | 0.13 | ND–0.39 | No | Runoff from herbicide used on row crops |
| Barium (ppm) | 2019 | 2 | 2 | 0.01 | 0.01–0.01 | No | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits |
| Chlorine (ppm) | 2019 | [4] | [4] | 1.9 | 1.6–2.3 | No | Water additive used to control microbes |
| Haloacetic Acids [HAAs] (ppb) | 2019 | 60 | NA | 7.6 | ND–18.00 | No | By-product of drinking water disinfection |
| Nitrate (ppm) | 2019 | 10 | 10 | 0.2 | ND–0.70 | No | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits |
| Total Organic Carbon [TOC] (ppm) | 2019 | TT | NA | ND | NA | No | Naturally present in the environment |
| TTHMs [Total Trihalomethanes] (ppb) | 2019 | 80 | NA | 14.63 | 7.50–21.40 | No | By-product of drinking water disinfection |
| Turbidity ¹ (NTU) | 2019 | TT | NA | 0.280 | 0.017–0.280 | No | Soil runoff |
| Turbidity (Lowest monthly percent of samples meeting limit) | 2019 | TT = 95% of samples meet the limit | NA | 100 | NA | No | Soil runoff |

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) | 2018 | 1.3 | 1.3 | 0.051 | ND–0.064 | 0/30 | No | Corrosion of household plumbing systems; Erosion of natural deposits |
| Lead (ppb) | 2018 | 15 | 0 | ND | NA | 0/30 | 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) | 2019 | 2.0 | NA | 1.02 | 0.89–1.19 | No | Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories |
| pH (Units) | 2019 | 6.5–8.5 | NA | 8.0 | 7.7–8.8 | No | Naturally occurring |

UNREGULATED AND OTHER SUBSTANCES

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AMOUNT DETECTED | RANGE LOW-HIGH |
|----------------------------------|-----------------|--------------------|-------------------|
| Bromide (ppb) | 2019 | 0.1619 | ND–0.3370 |
| Bromochloroacetic Acid (ppb) | 2019 | 1.18 | 0.36–2.36 |
| Bromodichloroacetic Acid (ppb) | 2019 | 0.78 | 0.51–1.00 |
| Chlorodibromoacetic Acid (ppb) | 2019 | 0.382 | 0.31–0.40 |
| Dichloroacetic Acid (ppb) | 2019 | 3.68 | 0.65–11.20 |
| HAA5 (ppb) | 2019 | 6.12 | 1.16–15.20 |
| HAA6Br (ppb) | 2019 | 1.93 | 0.36–3.50 |
| HAA9 (ppb) | 2019 | 8.05 | 1.52–18.30 |
| Hardness (ppm) | 2019 | 121 | 89–156 |
| Manganese (ppb) | 2019 | 1.14 | ND–1.97 |
| Total Alkalinity (ppm) | 2019 | 83 | 63–104 |
| Total Organic Carbon [TOC] (ppb) | 2019 | 5,736 | 4,770–6,760 |
| Trichloroacetic Acid (ppb) | 2019 | 1.951 | 0.510–5.400 |

¹Turbidity 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.

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 percent 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.

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as the highest LRAAs.

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.

