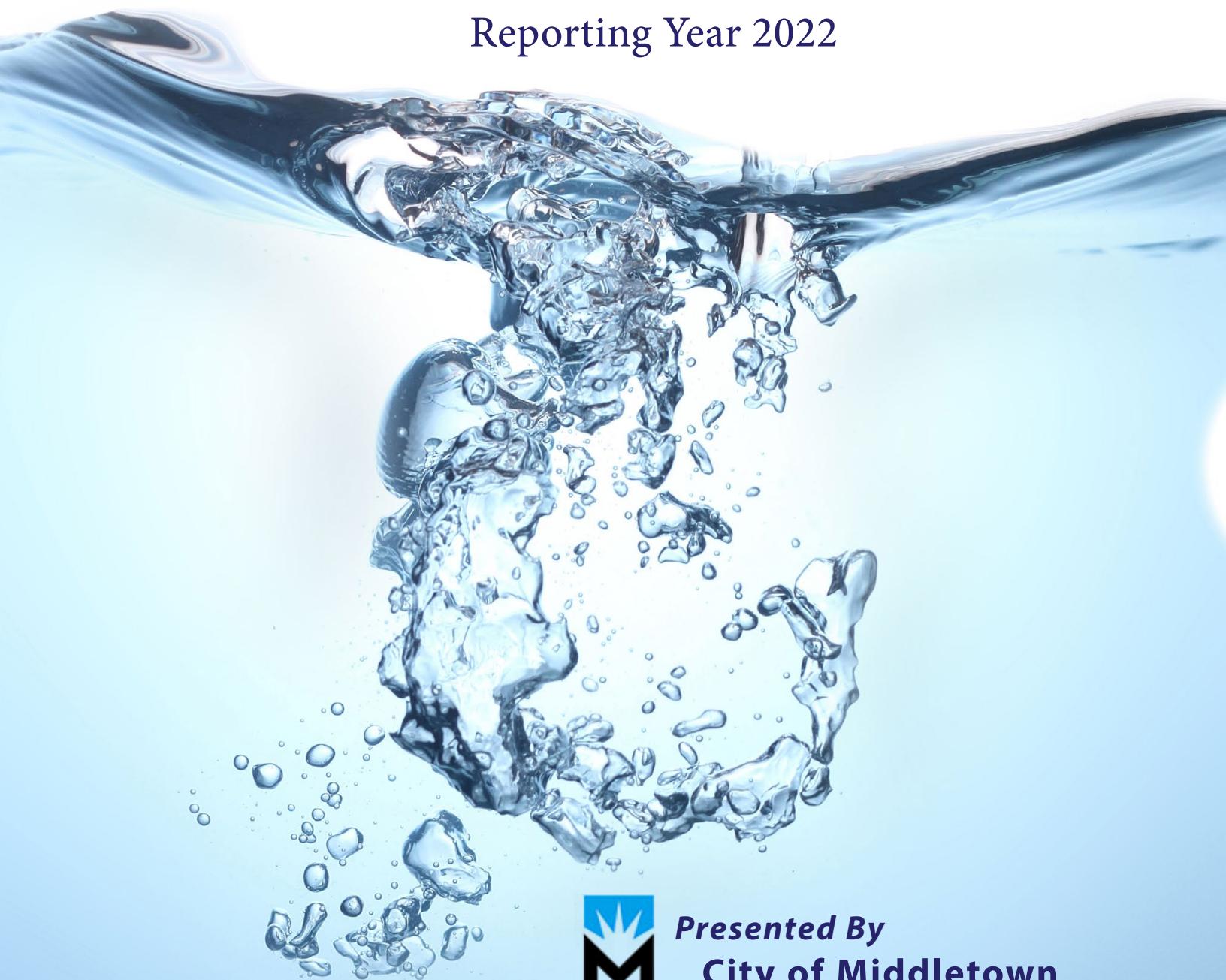


# ANNUAL WATER QUALITY REPORT

Reporting Year 2022



*Presented By*  
**City of Middletown**



## Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2022. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users. Please remember that we are always available should you ever have any questions or concerns about your water.

## Count on Us

Delivering high-quality drinking water to our customers involves far more than just pushing water through pipes. Water treatment is a complex, time-consuming process. Because tap water is highly regulated by state and federal laws, water treatment plant and system operators must be licensed and are required to commit to long-term, on-the-job training before becoming fully qualified. Our licensed water professionals have a basic understanding of a wide range of subjects, including mathematics, biology, chemistry, and physics. Some of the tasks they complete on a regular basis include:

- Operating and maintaining equipment to purify and clarify water.
- Monitoring and inspecting machinery, meters, gauges, and operating conditions.
- Conducting tests and inspections on water and evaluating the results.
- Maintaining optimal water chemistry.
- Applying data to formulas that determine treatment requirements, flow levels, and concentration levels.
- Documenting and reporting test results and system operations to regulatory agencies.
- Serving our community through customer support, education, and outreach.

So, the next time you turn on your faucet, think of the skilled professionals who stand behind each drop.

## Source Water Description

Your drinking water comes from the Great Miami Buried Valley Aquifer. Groundwater production wells produce up to 20 million gallons of drinking water per day. The untreated well water is pumped to the water treatment plant, where it is softened using lime, disinfected with chlorine, and then filtered using dual-media water filters. Fluoride is also added to the water as a measure to prevent tooth decay. Middletown maintains established water supply connections with Warren County, Southwest Regional Water District, and the City of Monroe. These emergency connections are available to be used in extraordinary conditions such as drought, source failure, line breaks, fires, and other periods of unusually high water demand.

“

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

—W.H. Auden

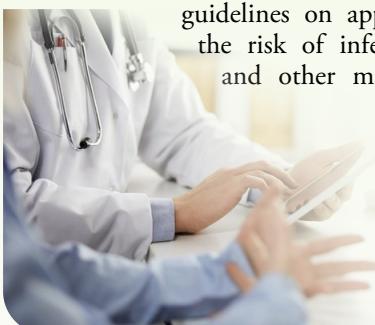
## Public Meetings

How do I participate in decisions concerning my drinking water? Public participation and comments are encouraged at regular meetings of city council, which are held the first and third Tuesday of the month at 5:30 p.m. in the City Building's lower-level Council Chambers. Please visit [www.cityofmiddletown.org](http://www.cityofmiddletown.org) or call (513) 425-7864 for more information.

## 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.



## QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Scott Belcher, Treatment Plant Manager, at (513) 425-7781.

## 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.

## Source Water Assessment

Protecting our water source is one important way the City of Middletown limits contaminants in our drinking water. The Ohio Environmental Protection Agency (OEPA) completed a study of the City of Middletown's source of drinking water to determine its susceptibility. According to this study, the aquifer (water-rich zone) that supplies water to the City of Middletown has a high susceptibility to contamination. It is important to understand that this susceptibility rating does not imply poor water quality, only the system's potential to become contaminated within the assessment area.

This determination is based on the following:

- Lack of a protective layer of clay overlying the aquifer
- Shallow depth (less than 15 feet below ground surface) of the aquifer
- The presence of significant potential contaminant sources in the protection area
- Past detection of human-made contaminants in Middletown's aquifer

The risk of future contamination is being minimized by implementing appropriate protective measures. The City of Middletown has developed and implemented a comprehensive Wellhead/Source Water Protection Plan to help prevent potential contamination from entering the aquifer. The protection plan contains an educational component, source control strategies, a contingency and emergency response plan, and groundwater monitoring strategies. A copy of the source water assessment report and information about what consumers can do to help protect the aquifer, is available by calling (513) 425-1860 or (513) 425-7781.



## 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](http://www.epa.gov/safewater/lead).



## 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] | Amount Detected | Range Low-High | Violation | Typical Source   |
|---|--------------|------------|--------------|-----------------|----------------|-----------|--|
| Antimony (ppb)                              | 2020         | 6          | 6            | 1.7             | NA             | No        | Discharge from petroleum refineries; Fire retardants; Ceramics; Electronics; Solder  |
| Barium (ppm)                                | 2020         | 2          | 2            | 0.0489          | NA             | No        | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits                                 |
| Chlorine (ppm)                              | 2022         | [4]        | [4]          | 0.7542          | 0.69–0.8       | No        | Water additive used to control microbes  |
| Fluoride (ppm)                              | 2022         | 4          | 4            | 1.01            | 0.63–1.01      | No        | Erosion of natural deposits; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories |
| Gross Alpha Particles (pCi/L)               | 2017         | 3          | NA           | 1.6             | NA             | No        | NA   |
| Nitrate (ppm)                               | 2022         | 10         | 10           | 1.1             | NA             | No        | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits                                |
| Radium 228 (pCi/L)                          | 2017         | 1          | NA           | 0.52            | NA             | No        | NA   |
| TTHMs [total trihalomethanes]–Stage 1 (ppb) | 2022         | 80         | NA           | 25.5            | 19.1–25.5      | No        | By-product of drinking water disinfection  |

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)                | 2022         | 1.3 | 1.3  | 0.0465                      | 0.002–0.0762   | 0/32                       | No        | Corrosion of household plumbing systems; Erosion of natural deposits  |
| Lead (ppb)                  | 2022         | 15  | 0    | 0.9114                      | 0.1–2.11       | 0/32                       | 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 | Amount Detected | Range Low-High | Typical Source              |
|-----------------------------|--------------|-----------------|----------------|-----------------------------|
| Nickel (ppb)                | 2020         | 8.5             | NA             | Erosion of natural deposits |

## 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.

**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).

## 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>.

## Table Talk

Get the most out of the Testing Results data table with this simple suggestion. In less than a minute, you will know all there is to know about your water:

For each substance listed, compare the value in the Amount Detected column against the value in the MCL (or AL, SMCL) column. If the Amount Detected value is smaller, your water meets the health and safety standards set for the substance.

### Other Table Information Worth Noting

Verify that there were no violations of the state and/or federal standards in the Violation column. If there was a violation, you will see a detailed description of the event in this report.

If there is an ND or a less-than symbol (<), that means that the substance was not detected (i.e., below the detectable limits of the testing equipment).

The Range column displays the lowest and highest sample readings. If there is an NA showing, that means only a single sample was taken to test for the substance (assuming there is a reported value in the Amount Detected column).

If there is sufficient evidence to indicate from where the substance originates, it will be listed under Typical Source.

## BY THE NUMBERS



The number of Olympic-sized swimming pools it would take to fill up all of Earth's water.

**800 TRILLION**

**1** The average cost in cents for about 5 gallons of water supplied to a home in the U.S.

**99**

The percent of Earth's water that is salty or otherwise undrinkable, or locked away and unavailable in ice caps and glaciers.

**50** The average daily number of gallons of total home water use for each person in the U.S.

**71**

The percent of Earth's surface that is covered by water.

**330 MILLION**

The amount of water on Earth in cubic miles.