

ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2019



Presented By
City of Middletown

Our Mission Continues

The City of Middletown is pleased to present this annual drinking water report. Water is our most valuable resource, and we know you depend on receiving high-quality drinking water each and every day. This report is prepared to give you information on where your water comes from, the contents of your drinking water, and the results of water quality testing performed in 2019.



Wellhead/Source Water Protection Plan

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. 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; and
- Past detection of man-made contaminants in Middletown's aquifer

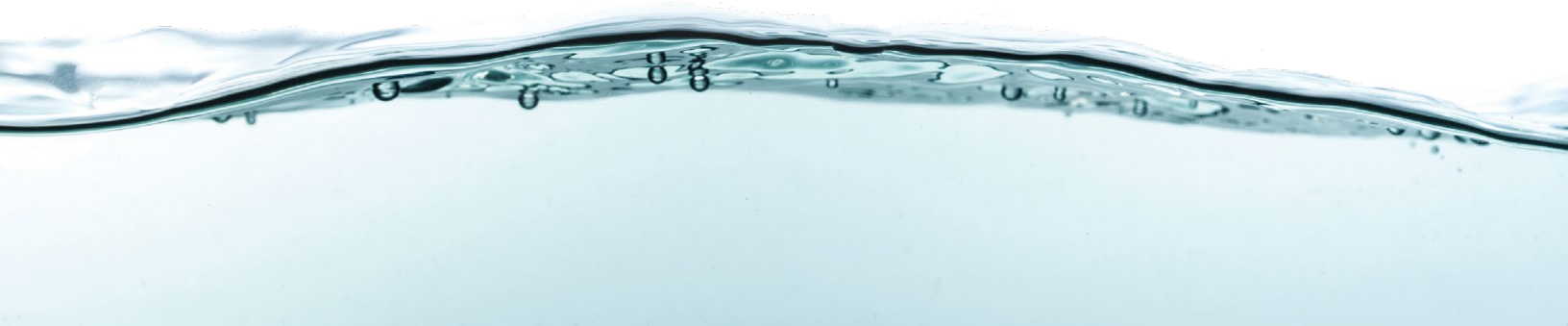
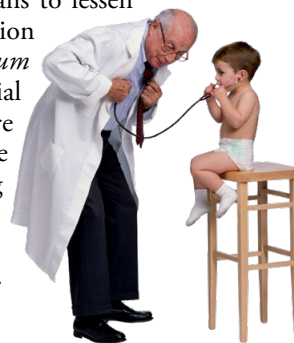
The risk of future contamination is being minimized by implementing appropriate protective measures. The City of Middletown has developed and implemented a comprehensive Wellhead/Source Water Protection Plan to help prevent potential contamination from entering the aquifer. The protection plan contains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

Source of Your Drinking Water

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.

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>.



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 1st and 3rd Tuesdays of the month, at 5:30 p.m. in the City Building's lower level Council Chambers. Please visit www.cityofmiddletown.org or call (513) 425-7864 for more information.

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.

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

Tap vs. Bottled

Thanks in part to aggressive marketing, the bottled water industry has successfully convinced us all that water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council, bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25 percent of bottled water is actually just bottled tap water (40 percent, according to government estimates).

The Food and Drug Administration is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children. Furthermore, the FDA completely exempts bottled water that's packaged and sold within the same state, which accounts for about 70 percent of all bottled water sold in the United States.

People spend 10,000 times more per gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to \$1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you'd pay for bottled water.

For a detailed discussion on the NRDC study results, check out their Web site at <https://goo.gl/Jxb6xG>.



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.

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 2 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's a Cross-Connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed industrial, commercial, and institutional facilities in the service area to make sure that potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test backflow preventers to make sure that they provide maximum protection.

For more information on backflow prevention, contact the Safe Drinking Water Hotline at (800) 426-4791.



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

151
THOUSAND

The number of active public water systems in the U.S.

The number of highly trained and licensed water professionals serving in the U.S.

199
THOUSAND

93

The number of federally regulated contaminants tested for in drinking water.

Test Results

Middletown water is monitored for many different kinds of substances that could be in drinking water. To keep drinking water safe, maximum allowed levels of substances have been established on a State and Federal level. In the tables below, we have listed the substances detected in our drinking water during water quality testing in 2019. Please note: The amount of each substance detected is far below the 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.

We participated in the 4th 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 EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if the 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 Contaminant Monitoring Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.

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

| REGULATED SUBSTANCES | | | | | | | | |
|---|--------------|------------|--------------|-----------------------------|----------------|----------------------------|--|---|
| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | MCL [MRDL] | MCLG [MRDLG] | AMOUNT DETECTED | RANGE LOW-HIGH | VIOLATION | TYPICAL SOURCE | |
| Barium (ppm) | 2017 | 2 | 2 | 0.0612 | NA | No | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits | |
| Chlorine (ppm) | 2019 | [4] | [4] | 0.769 | 0.7–0.79 | No | Water additive used to control microbes | |
| Fluoride (ppm) | 2019 | 4 | 4 | 1.02 | 0.59–1.02 | No | Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories | |
| Haloacetic Acids [HAAs] (ppb) | 2019 | 60 | NA | 3.506 | 2.9–3.506 | No | By-product of drinking water disinfection | |
| Nitrate (ppm) | 2019 | 10 | 10 | 1.1 | NA | No | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits | |
| TTHMs [Total Trihalomethanes] (ppb) | 2019 | 80 | NA | 27 | 19.1–27.0 | 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) | 2019 | 1.3 | 1.3 | 0.0084 | 0.0019–0.0758 | 0/31 | No | Corrosion of household plumbing systems; Erosion of natural deposits |
| Lead (ppb) | 2019 | 15 | 0 | 1.379 | 0.041–7.18 | 0/31 | No | Lead services lines; Corrosion of household plumbing systems including fittings and fixtures; Erosion of natural deposits |
| OTHER REGULATED SUBSTANCES | | | | | | | | |
| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | MCL [MRDL] | MCLG [MRDLG] | AMOUNT DETECTED | RANGE LOW-HIGH | VIOLATION | TYPICAL SOURCE | |
| Gross Alpha (pCi/L) | 2017 | 3 | NA | 1.6 | NA | No | NA | |
| Radium 228 (pCi/L) | 2017 | 1 | NA | 0.52 | NA | No | NA | |

UNREGULATED CONTAMINANT MONITORING RULE - PART 4 (UCMR4)

| CONTAMINANTS | SAMPLE YEAR | TYPE | DETECTED LEVEL | RANGE | TYPICAL SOURCE |
|----------------------------------|-------------|------------------|----------------|----------|--------------------------|
| Bromide (ppb) | 2019 | Volatile Organic | 48.15 ppb | 44-52.3 | Chlorination By-Product. |
| Haloacetic Acids (HAA5) | 2019 | Volatile Organic | 3.835 ppb | 3.7-4.01 | Chlorination By-Product. |
| Haloacetic Acids (HAA6Br) | 2019 | Volatile Organic | 6.5 ppb | 4.7-8.05 | Chlorination By-Product. |
| Haloacetic Acids (HAA9) | 2019 | Volatile Organic | 8.325 ppb | 6.6-9.75 | Chlorination By-Product. |
| Manganese | 2019 | Mineral Element | 1.3 ppb | n/a | Naturally occurring |

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).