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, 2016. 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 any hour—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 Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of clearing the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove such water and ensures the presence of fresh water with sufficient dissolved oxygen, disinfectant levels, and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at that time. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use, and avoid using hot water in order to prevent sediment accumulation in your hot water tank.

Please contact us if you have any questions or if you would like more information on our water main flushing schedule.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised 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) 436-4791 or https://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 storm-water 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 storm-water 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 storm-water 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) 436-4791.

Information on the Internet

The U.S. EPA (https://www.epa.gov/TFAM4K) and the Centers for Disease Control and Prevention (www.cdc.gov) provide a substantial amount of information on many issues relating to water resources, water conservation and public health. Also, the Ohio Environmental Protection Agency has a website (https://oee.gov/pl3MaAd6/) that provides complete and current information on water issues in Ohio, including valuable information about our watershed.

**QUESTIONS?**

Questions about the water system, which has been in operation since 1935, may be directed to Mark Day at 513-732-7945.
Test Results

Our water is monitored for many different kinds of contaminants on a very strict sampling schedule. The information below represents only those substances that were detected; our goal is to keep all dioxins below their respective maximum allowed levels. 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. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

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

<table>
<thead>
<tr>
<th>REGULATED SUBSTANCES</th>
<th>COMPOUND (ppb)</th>
<th>YEAR SAMPLED</th>
<th>MCL (ppb)</th>
<th>MCLG (ppb)</th>
<th>AMOUNT DETECTED</th>
<th>RANGE (LOD/MDL)</th>
<th>VIOLATION</th>
<th>TYPICAL SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic</td>
<td>Arsenic (ppb)</td>
<td>2016</td>
<td>16</td>
<td>0</td>
<td>3.6</td>
<td>1.3-3.6</td>
<td>No</td>
<td>Emission of natural deposits, runoff from orchards, runoff from glass and electronics production wastes</td>
</tr>
<tr>
<td>Barium (ppb)</td>
<td>2016</td>
<td>2</td>
<td>2</td>
<td>No</td>
<td>Discharge of drilling wastes; Discharge from metal refineries; Emission of natural deposits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chloride (ppb)</td>
<td>2016</td>
<td>4</td>
<td>4</td>
<td>1.0</td>
<td>0.3-2.8</td>
<td>No</td>
<td>Water additives used to control scale</td>
<td></td>
</tr>
<tr>
<td>Fluoride (ppb)</td>
<td>2016</td>
<td>4</td>
<td>4</td>
<td>0.99</td>
<td>0.99-1.30</td>
<td>No</td>
<td>Emission of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories</td>
<td></td>
</tr>
<tr>
<td>Halogenated Acids [HAA] (ppb)</td>
<td>2016</td>
<td>60</td>
<td>NA</td>
<td>46.0</td>
<td>ND-57.5</td>
<td>No</td>
<td>By-product of drinking water disinfection</td>
<td></td>
</tr>
<tr>
<td>Dissolved (ppb)</td>
<td>2016</td>
<td>10</td>
<td>10</td>
<td>0.91</td>
<td>0.99-1.00</td>
<td>No</td>
<td>Benfifll from fertilizer; Leaching from apiaric sources, sewage; Emission of natural deposits</td>
<td></td>
</tr>
<tr>
<td>TTHM (Total Trihalomethanes) (ppb)</td>
<td>2016</td>
<td>80</td>
<td>NA</td>
<td>76.5</td>
<td>72.0-80.0</td>
<td>No</td>
<td>By-product of drinking water disinfection</td>
<td></td>
</tr>
<tr>
<td>Total Organic Carbon (TOC) (ppb)</td>
<td>2016</td>
<td>TT</td>
<td>TT</td>
<td>1.25</td>
<td>0.96-1.53</td>
<td>No</td>
<td>Naturally present in the environment</td>
<td></td>
</tr>
<tr>
<td>Turbidity (NTU)</td>
<td>2016</td>
<td>TT</td>
<td>TT</td>
<td>0.368</td>
<td>0.250-0.269</td>
<td>No</td>
<td>Soil runoff</td>
<td></td>
</tr>
<tr>
<td>Turbidity (lowest monthly percent of samples meeting the limit)</td>
<td>2016</td>
<td>TT</td>
<td>TT</td>
<td>100</td>
<td>100</td>
<td>No</td>
<td>Soil runoff</td>
<td></td>
</tr>
</tbody>
</table>

Top Water Samples Collected for Lead and Copper Analyses from Sample Sites throughout the Community

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>COMPOUND (ppb)</th>
<th>YEAR SAMPLED</th>
<th>MCL (ppb)</th>
<th>MCLG (ppb)</th>
<th>AMOUNT DETECTED</th>
<th>RANGE (LOD/MDL)</th>
<th>VIOLATION</th>
<th>TYPICAL SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper (ppb)</td>
<td>2014</td>
<td>13</td>
<td>1.3</td>
<td>0.365</td>
<td>0</td>
<td>0.0-0.054</td>
<td>0</td>
<td>Corrosion of household plumbing systems; Emission of natural deposits</td>
</tr>
<tr>
<td>Lead (ppb)</td>
<td>2014</td>
<td>15</td>
<td>0</td>
<td>0.5</td>
<td>0.0-5.0</td>
<td>0</td>
<td>Corrosion of household plumbing systems; Emission of natural deposits</td>
<td></td>
</tr>
</tbody>
</table>

1 Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.
2 The value reported under Amount Detected for TOC is the lowest value between percentage of TOC actually removed to the percentage of TOC required to be removed. A value of percent that one indicates that the water system is in compliance with TOC removal requirement. A value of less than one indicates that more than one of the TOC removal requirements are more than 10 percent.
3 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.

Source Water Description

The Clinton County Water System operates three water treatment plants that pump into a common distribution system of pipes serving our customers.

The MGS plant, located near Miamiville, draws water from wells in the Little Miami River Aquifer. In 2006, the Ohio EPA performed a source water assessment for the MGS well field and designated it as highly susceptible to contamination. This is based in part on the geology of the aquifer, which is shallow and has little or no impermeable materials atop it. Another factor is the presence of potential sources of pollution in the area. The EPA also notes the presence of nitrites in the water, which suggests man-made influence in the aquifer. However, the water continues to meet drinking water standards. These well fields are monitored for contamination and cared for under an Ohio EPA-endorsed Wellhead Protection Plan. Persons who wish to learn more may call Rick Fuesten at 513-553-4113.

The PUL plant is near New Palestine, where its wells draw from the Ohio River Valley Aquifer. A susceptibility analysis from the Ohio EPA has determined that this aquifer has a high susceptibility for contamination, based on a relatively thick layer of low-permeability material overlying the aquifer, and the relatively shallow depth of the aquifers. Potential pollution sources in the area and a possible hydraulic connection to the Ohio River also contribute to this assessment. However, the EPA agrees that there is no evidence of existing chemical contamination. These well fields are monitored for contamination as well as their respective water treatment facilities to ensure that the water is safe for public consumption.

The Bob McEwen Water Treatment Plant (MWTP) is located near Batavia and draws surface water from Harsha Lake, which was created by constructing a dam across the East Fork Little Miami River. Surface water is more susceptible to contamination than ground water, so extensive testing of the raw water is conducted frequently. Chemical and biological analysis, as well as evaluation of the habitat of organisms living upstream of the lake, is used to determine raw water quality and identify areas of concern. The Ohio EPA completed a source water assessment for MWTP in 2006. The protection area around Harsha Lake and the upstream portions of the East Fork Little Miami River includes a number of industrial and commercial facilities, but the greater concern is runoff from agricultural fields, the potential for spills as road and rail crossings, and residential septic systems in the watershed. Persons who wish to learn more may contact Tom Neyes at 513-532-5380. Additional information on the watershed collected by Clinton County is available from the Office of Environmental Quality (OWQ) at 513-732-7894 or at the website: http://www.owq.net. After treatment, which includes granular-activated carbon filtration, water from the lake meets all required drinking water standards.

What Causes the Pink Stain on Bathroom Fixtures?

The reddish-pink color frequently noted in bathrooms on shower stalls, tubs, tile, toilets, sinks, toiletbrush holders and on pets' water bowls is caused by the growth of the bacterium Serratia marcescens. Serratia is commonly isolated from soil, water, plants, insects, and vertebrates (including man). The spores can be introduced into the house through any of the above-mentioned sources. The bathroom provides a perfect environment (moist and warm) for bacteria to thrive.

The best solution to this problem is to continually clean and dry the involved surfaces to keep them free from bacteria. Chlorinated compounds work best, but keep in mind that abrasive cleansers may scratch fixtures, making them more susceptible to bacterial growth. Chlorine bleaches can be used periodically to disinfect the toilet and help to eliminate the occurrence of the pink residue. Keeping bathtubs and sinks wiped down using a solution that contains chlorine will also help to minimize its occurrence.

Serratia will not survive in chlorinated drinking water.

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 cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you may 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. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at www.epa.gov/lead.

Attempts to prevent or reduce the amount of lead in drinking water have not been as successful as anticipated. Therefore, it is necessary to continue to monitor the amount of lead in drinking water.

Definitions

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG as feasible, taking the best available treatment technology and other factors into consideration.

MCLG (Maximum Contaminant Level Goal): The highest level of a contaminant in drinking water below which there is no known or anticipated risk to health. MCLGs allow for a margin of safety.

MRL (Maximum Residual Disinfectant Level): The highest level of a disinfectant residual allowed in drinking water. There is convincing evidence that at levels above the MRL, disinfectants may pose a risk to health. MRLs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

MDL (Minimum Detectable Limit): The lowest concentration of a substance that can be identified with 95 percent confidence. MDLs allow for a margin of safety.

Failure in Flint

The national news coverage of water conditions in Flint, Michigan, has created a great deal of confusion and concern. The water there has been described as corrosive, imaged of controlled barrettes and warning labels on bottles of acid come mind. But is corrosive water bad?

Corrosive water can be defined as a condition of water quality that will dissolve metals (iron, lead, copper, etc.) from metallic plumbing at an rate, corroding plumbing which can cause water to carry more rapidly than the water with lower corrosivity. By itself corrosive water is not a health concern; your morning glass of orange juice is considerably more corrosive than the typical lake or river water. What is of concern is that exposure to drinking water to elevated levels of the dissolved metals becomes a health risk. And there lies the problem. Public water systems are required to maintain water at optimal conditions to prevent or reduce the corrosive levels. Rest assured that we routinely monitor our water to make sure that what happened in Flint never happens here. For more information on how corrosivity impacts water quality, download this informative pamphlet: http://gospa.michigan.gov/