

ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2019



Presented By
City of Battle Creek

Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between Jan. 1 and Dec. 31, 2019. 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.

In 2019, we did the following to improve our service and water quality:

- Replaced large transmission lines and valves leaving the water plant;
- Replaced an outdated service pump with a new 6,000-gallon-per-minute (gpm) variable-speed pump for energy savings;
- Completely rebuilt five 1,200-gpm pumps;
- Removed standing trees that threatened the electrical and communications lines to the wells in the wellfield, improving reliability during wind, ice, and snow storms.

With these improvements and continued maintenance, the plant was better able to handle a contractor-caused break to a 30-inch transmission line water main in February 2019.

Please remember that we are always available should you ever have any questions or concerns about your water.

Important Health Information

The susceptible vulnerable subpopulation for lead exposure are infants and children. Infants and children who drink water containing lead in excess of the AL could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

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 US 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

The City Commission invites neighbors to give public comment during regular meetings, typically at 7 p.m. the first and third Tuesdays of each month, located at City Hall, 10 N. Division St. See www.battlecreekmi.gov for information and agendas.

Protecting Our Source

We all have a role in protecting our drinking water supply. Dumping items such as motor oil, fuel products, cleaners, paints, pharmaceuticals, and pesticides on the ground or down the drain can contaminate groundwater and surface water. Check www.bcwater.org or www.calhouncountymi.gov/ for information on hazardous waste collection dates in your community.

QUESTIONS?

For more information about this report, or for any questions about your drinking water, please call Perry Hart, Utility Administrator, at (269) 966-3481. Use the following contacts for non-Battle Creek residents: City of Springfield, (269) 965-2354; Emmett Township, (269) 968-0241. To sign up for text and e-mail notifications from the City of Battle Creek, visit www.battlecreekmi.gov/notifyme.

For assistance in another language, please contact the Department of Public Works at (269) 966-3343. The city will provide interpretation at no cost to the caller.

Por consultas o asistencia en español, por favor comuníquese con el Departamento de Obras Públicas al (269) 966-3343. Se le conseguirá un intérprete de forma gratuita.

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Source Water Assessment

The state performed an assessment of our source water from the Verona and Columbia wellfields in 2003, to determine their susceptibility, or relative potential, for contamination. The susceptibility rating is on a seven-tiered scale from a very low to very high, based primarily on geologic sensitivity, water chemistry, and contaminant sources. The susceptibility rating of the Verona Wellfield is high and the rating for the Columbia Wellfield is moderately high. (It is important to understand that these susceptibility ratings do not imply poor water quality, only the system's potential to become contaminated within the assessment areas.) Known sources of contamination within the Verona Wellhead Protection Area are being remedied to prevent movement of contamination to municipal wells. (As a note, the City of Battle Creek has not used the Columbia Wellfield since 2003.) To further protect our sources of drinking water, the City of Battle Creek developed a wellhead protection plan for both wellfields. If you would like to know more about the report, please contact Perry Hart, Utility Administrator, at (269) 966-3481.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the US EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. US 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) 426-4791.

Lead Service Lines

- 4,594 lead services in the City of Battle Creek
- 14,700 services of other materials in the City of Battle Creek
- 19,294 total services in the City of Battle Creek
- 336 lead/unknown services in Emmett Township
- 995 total services in Emmett Township
- 4 lead services in the City of Springfield
- 1,652 services of other materials in the City of Springfield
- 78 unknown services in the City of Springfield
- 1,734 total services in the City of Springfield



Where Does My Water Come From?

The City of Battle Creek uses groundwater from the Marshall Sandstone Aquifer, drawn from the Verona Wellfield located in the northeast section of the city, as its sole source of drinking water. We drill wells into the sandstone formation to collect the water that is stored there.

What is groundwater?

Groundwater is water beneath the surface of the earth that fills openings, known as pore spaces, in sand, gravel, or fractured rock. Groundwater begins as precipitation from snow or rain that passes through the soil and accumulates in the pore spaces.

What is an aquifer?

When enough water accumulates to supply a well, it is considered an aquifer. The City of Battle Creek obtains its water from a bedrock aquifer. The water is pumped from 22 wells, whose depths range from 100 to 150 feet.

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 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.

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.

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 U.S. EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if 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 Drinking Water Hotline at (800) 426-4791.

REGULATED SUBSTANCES

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | City of Battle Creek | | | | Emmett Township | | City of Springfield | | VIOLATION | TYPICAL SOURCE |
|---|-----------------|----------------------|-----------------|--------------------|-------------------|--------------------|-------------------|---------------------|-------------------|-----------|--|
| | | MCL [MRDL] | MCLG [MRDLG] | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | AMOUNT DETECTED | RANGE LOW-HIGH | | |
| Alpha Emitters (pCi/L) | 2015 | 15 | 0 | 4.4 | NA | NA | NA | NA | NA | No | Erosion of natural deposits |
| Arsenic (ppb) | 2017 | 10 | 0 | 1 | NA | NA | NA | NA | NA | No | Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes |
| Beta/Photon Emitters ¹ (pCi/L) | 2015 | 50 | 0 | 5.3 | NA | NA | NA | NA | NA | No | Decay of natural and man-made deposits |
| Chlorine (ppm) | 2019 | [4] | [4] | 0.69 | 0.47–0.78 | 0.55 | 0.34–0.72 | 0.55 | 0.25–0.87 | No | Water additive used to control microbes |
| Combined Radium (pCi/L) | 2015 | 5 | 0 | 1.62 | NA | NA | NA | NA | NA | No | Erosion of natural deposits |
| Fluoride (ppm) | 2019 | 4 | 4 | 0.73 | 0.58–0.86 | 0.78 | 0.71–0.85 | 0.78 | 0.72–0.83 | No | Erosion of natural deposits; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories |
| Haloacetic Acids [HAAs] (ppb) | 2019 | 60 | NA | 9.9 | 8.0–13.0 | 8.0 | NA | 8.0 | NA | No | By-product of drinking water disinfection |
| TTHMs [Total Trihalomethanes] (ppb) | 2019 | 80 | NA | 35.9 | 28.8–47.2 | 22.8 | NA | 30.4 | NA | No | By-product of drinking water chlorination |

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

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | City of Battle Creek | | | | | Emmett Township | | | City of Springfield | | | VIOLATION | TYPICAL SOURCE |
|--------------------------------|-----------------|----------------------|------|-----------------------------------|-------------------|----------------------------------|-----------------------------------|-------------------|----------------------------------|-----------------------------------|-------------------|----------------------------------|-----------|--|
| | | AL | MCLG | AMOUNT DETECTED (90TH %ILE) | RANGE LOW-HIGH | SITES ABOVE AL/TOTAL SITES | AMOUNT DETECTED (90TH %ILE) | RANGE LOW-HIGH | SITES ABOVE AL/TOTAL SITES | AMOUNT DETECTED (90TH %ILE) | RANGE LOW-HIGH | SITES ABOVE AL/TOTAL SITES | | |
| Copper (ppm) | 2019 | 1.3 | 1.3 | 0.6 | 0–0.8 | 0/30 | 0.6 | 0–0.9 | 0/40 | 0.5 | 0–0.7 | 0/20 | No | Corrosion of household plumbing systems; Erosion of natural deposits |
| Lead (ppb) | 2019 | 15 | 0 | 2 | 0–17 | 1/30 | 0 | 0–0 | 0/40 | 1.0 | 0–25 | 1/20 | No | Corrosion of household plumbing systems; Erosion of natural deposits |

SECONDARY SUBSTANCES (CITY OF BATTLE CREEK)

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | SMCL | MCLG | AMOUNT DETECTED | RANGE LOW-HIGH | VIOLATION | TYPICAL SOURCE |
|--------------------------------|-----------------|------|------|--------------------|-------------------|-----------|--|
| Chloride (ppm) | 2019 | 250 | NA | 47 | 35–60 | No | Runoff/leaching from natural deposits |
| Sulfate (ppm) | 2019 | 250 | NA | 60 | 43–73 | No | Runoff/leaching from natural deposits; Industrial wastes |

UNREGULATED SUBSTANCES (CITY OF BATTLE CREEK)

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AMOUNT DETECTED | RANGE LOW-HIGH | TYPICAL SOURCE |
|--------------------------------|-----------------|--------------------|-------------------|--|
| Sodium (ppm) | 2019 | 17 | 15–17 | Naturally present in the environment; Road salting; Septic systems |

¹The MCL for beta particles is 4 mrem/year. US EPA considers 50 pCi/L to be the level of concern for beta particles.

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.

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.

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).

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

Treatment Train Description

The treatment process consists of a series of steps. First, water is drawn from a groundwater aquifer and is sent to the radon, iron, and manganese removal plant. Once there, air and disinfectant are added to the water through a treatment process, which also serves as a treatment for radon. Aeration also causes the iron and manganese to form larger particles that are easier to remove. Next, the water is filtered to remove the iron and manganese through dual-media, rapid sand filters. After filtration, a small amount of phosphate product is added to keep the water from corroding pipes and plumbing, to benefit lead and copper control. The water is then sent to an underground reservoir. Finally, low doses of fluoride (used for dental health) and chlorine (used for disinfection) are added before the water is pumped to water towers and into your home or business.

Radon

Our system monitored for radon in the combined raw water supply before and after aeration. Results of this sampling indicate that our raw water has a level of 350 pCi/L before aeration, and the water after aeration has a level of 155 pCi/L, which is below the maximum contaminant level of 300 pCi/L.

Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the U.S. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. You should pursue radon removal for your home if the level of radon in your air is 4 pCi/L or higher. There are simple ways to fix a radon problem that are not too costly. For additional information, call your state radon program at (800) 723-6642 or e-mail at radon@michigan.gov, or call the US EPA Radon Hotline at (800) SOS-RADON.



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 have a service line that is lead, galvanized previously connected to lead, or unknown but likely to be lead, it is recommended that you run your water for at least 5 minutes to flush water from both your home plumbing and the lead service line.

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 at (800) 426-4791, or on the U.S. EPA's website at <http://water.epa.gov/drink/info/lead/index.cfm>. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

About the Emmett Township Violation

During the period from Jan. 1 to June 30, 2019, our downstream, wholesale customer, Emmett Township, was notified by the Michigan Department of Environment, Great Lakes and Energy (EGLE) of a violation for failing to test and report lead levels to occupants of homes in Emmett Township. Upon being notified of this violation, Emmett Township tested lead and copper in 40 sites in the distribution system and reported the results to occupants. Emmett Township and the City of Battle Creek do not believe that missing this monitoring requirement had any impact on public health and safety. Emmett Township has already taken the steps to ensure that adequate monitoring and reporting will be performed in the future so that this oversight will not be repeated.



IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Monitoring Requirements Not Met for Emmett Township

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During January 1, 2019, through June 30, 2019, we did not monitor for the correct number of lead and copper samples. The violation **does not** pose a threat to the quality of the supply's water.

What should I do? There is nothing you need to do at this time. This is not an emergency. You do not need to boil water or use an alternative source of water at this time. Even though this is not an emergency, as our customers, you have a right to know what happened and what we're doing to correct the situation.

The table below lists the contaminants we did not properly test for, how often we are supposed to sample for these contaminants, how many samples we are supposed to take, how many samples we took, when samples should have been taken, and the date we will collect follow-up samples.

| Contaminants | Required sampling frequency | Number of sites sampled | When samples should have been collected | Date additional samples will be collected |
|-----------------|-----------------------------|-------------------------|---|---|
| Lead and Copper | 20 sites every 6 months | 0 | January 1, 2019, through June 30, 2019 | July 1, 2019 through December 31, 2019 |

What happened? What is being done? We inadvertently missed taking samples within this required sampling. We are making every effort to ensure this does not happen again.

For more information, please contact Mr. Perry Hart, Operator-in-Charge, at 269-966-3481

Please share this information with all other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or Mail.

This notice is being provided to you by the Emmett Township water system, Water System Serial Number (WSSN) #3475.