

A close-up photograph of clear water being poured from a glass pitcher into a clear glass. The water is captured mid-pour, creating a dynamic splash and bubbles. The background is a blurred wooden surface.

# ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2018



*Presented By*  
**City of Battle Creek**

## Our Mission Continues

The City of Battle Creek is once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2018. 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.

### News from 2018

The City of Battle Creek experienced high levels of manganese in the water and worked closely with other agencies to resolve these issues and ensure public health. More information is available at [www.battlecreekmi.gov/manganese](http://www.battlecreekmi.gov/manganese).

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



## 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>.



## Where Does My Water Come From?

The City of Battle Creek uses groundwater from the Marshall Sandstone Aquifer, drawn from the Verona Well Field 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.

## QUESTIONS?

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

အကယ်၍ အခြားဘာသာစကားဖြင့် အကူအညီလိုပါက Department of Public Works ဖုန်း (၂၆၉) ၉၆၆ ၃၃၄၃ သို့ ခေါ်ဆိုနိုင်ပါသည်။ စကားပြန်ကို အခမဲ့စီစဉ်ပေးပါမည်။

## 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.

## Public Meetings

The City Commission invites neighbors to give public comment during regular meetings, held at 7 p.m. on the first and third Tuesdays of each month, located at City Hall, 10 N. Division St.



## Source Water Assessment

The state performed an assessment of our source water from the Verona and Columbia well fields 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 Well Field is high and the rating for the Columbia Well Field 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. To further protect our sources of drinking water, the City of Battle Creek developed a wellhead protection plan for both well fields.

If you would like to know more about the report, please contact Perry Hart, Utility Administrator, at (269) 966-3481.

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

## Radon

Our system monitored for radon and found levels of 145 pCi/L in our drinking water, 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, you can test the air. 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 or call the U.S. EPA Radon Hotline at (800) SOS-RADON.

### Treatment Train Description

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

## Additional Monitoring

The City of Battle Creek is now routinely monitoring levels of manganese and iron to verify the performance of the City's radon, iron, and manganese removal plant.

## 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. 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 Web site at <http://water.epa.gov/drink/info/lead/index.cfm>.



### Lead Service Lines

- 4,680 Lead Services in City of Battle Creek
- 19,560 Services of other materials in City of Battle Creek
- 24,240 Total Services in City of Battle Creek
- 940 Services in Emmett Township - Unknown Materials
- 520 Services in Bedford Township - Unknown Materials
- 4 Lead Services in City of Springfield
- 1,652 Services of other materials in City of Springfield
- 1,734 Total Services in City of Springfield
- 78 Services in City of Springfield - Unknown Materials

## Monitoring and Reporting Violation

The Battle Creek – Verona System is 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 November 1, 2018, to November 30, 2018, we collected samples for trihalomethanes (TTHMs) and haloacetic acids (HAA5); however, they did not meet the pH requirements and could not be analysed. Therefore, we cannot be completely sure of the quality of your drinking water during that time. 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. Even though this is not an emergency, you have a right, as our customers, to know what happened and what we are 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 on which we will collect follow-up samples. Sampling scheduled for February was completed and met all standards for this monitoring.

CONTAMINANTS	REQUIRED SAMPLING FREQUENCY	NUMBER OF SAMPLES TAKEN	DATE SAMPLES SHOULD HAVE BEEN COLLECTED	DATE SAMPLE WILL BE COLLECTED
TTHM	1 sample every quarter	0	11/01/2019 - 11/30/2019	02/01/2019 - 02/28/2019
HAA5	1 sample every quarter	0	11/01/2019 - 11/30/2019	02/01/2019 - 02/28/2019

What happened? What is being done? TTHMs and HAA5s are by-products of our disinfection process and are required to be collected at a site where they are most likely to be highest. We collected samples during November of 2018, but they did not meet pH requirements. Therefore they cannot count towards compliance requirements. We will collect the required follow-up samples during February 2019. Our staff is making every effort to assure this does not happen again by utilizing our work order management system to schedule sampling events. Moving forward, samples will be taken earlier in the month. This will allow for timely resampling if there is an issue with the first samples as there was in this case.

For more information, please contact Perry Hart, Utility Administrator, at (269) 966-3481.

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

More information about your drinking water is available from the U.S. EPA Office of Water home page at <http://www.epa.gov/safewater/dwinfo.htm>.

This notice is being sent to you by the Battle Creek – Verona System.



## Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. 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 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.

REGULATED SUBSTANCES											
				City of Battle Creek		Emmett Township		City of Springfield			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
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 <sup>1</sup> (pCi/L)	2015	50	0	5.3	NA	NA	NA	NA	NA	No	Decay of natural and man-made deposits
Chlorine (ppm)	2018	[4]	[4]	0.64	0.05–1.34	0.47 <sup>2</sup>	0.22–0.74 <sup>2</sup>	0.48 <sup>2</sup>	0.11–0.65 <sup>2</sup>	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)	2018	4	4	0.77	0.54–0.90	0.77 <sup>2</sup>	0.68–0.86 <sup>2</sup>	0.76 <sup>2</sup>	0.68–0.84 <sup>2</sup>	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] (ppb)	2018	60	NA	8.5	4.0–12.0	ND <sup>2</sup>	NA <sup>2</sup>	7.0 <sup>2</sup>	NA <sup>2</sup>	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)	2017	1.3	1.3	0.6	0.05–0.82	0/61	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2017	15	0	1.0	1–20	0/61	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)	2018	250	NA	40	34–44	No	Runoff/leaching from natural deposits
Sulfate (ppm)	2017	250	NA	42	29–42	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)	2017	17	15–17	Naturally present in the environment; Road salting; Septic systems

<sup>1</sup> The MCL for beta particles is 4 mrem/year. The U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.

<sup>2</sup> Sampled in 2017.

## 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.

**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.

**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.