

ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2020



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 January 1 and December 31, 2020. 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 our customers.

As new challenges to drinking water 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 customers. In 2020, we completed a rehabilitation project on the Radon, Iron, & Manganese water treatment facility, the results of which are providing significant improvements in the removal of iron and manganese in the finished water. We also completed well testing on all wells in the well field and have scheduled necessary maintenance and replacement, where needed. The water distribution system has seen several water main replacement projects incorporated with the street renewal program which provides improved water quality and reliability with fewer service interruptions. The City continues to develop and perform work related to identifying water service line materials and replacement of water service lines containing lead. Expect considerably more effort in this area as we move into future years.

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>.

Infants and children who drink water containing lead 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.

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.



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, & 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 (for dental health) and chlorine (for disinfection) are added before the water is pumped to water towers and into your home or business.

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 email 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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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, typically at 7 p.m. on the first and third Tuesdays of each month, located at City Hall, 10 N. Division St. See <https://www.battlecreekmi.gov> for information and agendas.

Until further notice: Meetings are held virtually via Zoom, and live on AccessVision and the city's Facebook page. Public comment call-in and more information are in the public meeting notices, posted at <https://www.battlecreekmi.gov/421/Public-Meeting-Notices>.

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

Where Does My Water Come From?

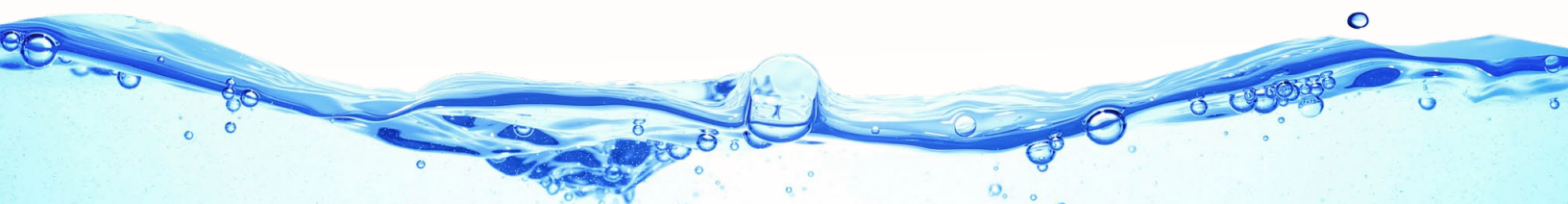
The City of Battle Creek uses groundwater from the Marshall Sandstone Aquifer, drawn from the Verona Well Field located in the northeast section of the city, as its sole source of drinking water. We drill wells into the sandstone formation to collect the water that is stored there.

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.



Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. Also, 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 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 ¹ (pCi/L)	2015	50	0	5.3	NA	NA	NA	NA	NA	No	Decay of natural and man-made deposits
Chlorine (ppm)	2020	[4]	[4]	0.74	0.67–0.83	0.66	0.53–0.89	0.63	0.45–0.83	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)	2020	4	4	0.78	0.74–0.82	0.78	0.72–0.84	0.78	0.72–0.83	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] (ppb)	2020	60	NA	8.0	2.0–10	8.0	NA	1	NA	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes] (ppb)	2020	80	NA	38.3	23.4–56.2	7	NA	62.2	NA	No	By-product of drinking water chlorination

Tap water samples were collected for lead and copper analyses from sample sites throughout the community.

				City of Battle Creek			Emmett Township			City of Springfield				
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	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	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2020	1.3	1.3	0.6	0–0.7	0/30	Jan-June 0.5	0–0.7	0/20	0.4	0.0–3.3	1/20	No	Corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits
							July-Dec 0.4	0–0.5	0/20					
Lead (ppb)	2020	15	0	2	0–6	0/30	Jan-June 0	0–6	0/20	6	0–96	1/20	No	Lead service lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits
							July-Dec 0	0–2	0/20					

SECONDARY SUBSTANCES (CITY OF BATTLE CREEK)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloride (ppm)	2020	250	NA	60	50–70	No	Runoff/leaching from natural deposits
Sulfate (ppm)	2020	250	NA	70	50–76	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)	2020	17	15-17	Naturally present in the environment; Road salting; Septic systems

¹The 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.

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

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.

About Our Violations

The Battle Creek-Verona System and the Emmett Township water system were issued two violations in 2020 by the Michigan Department of Environment, Great Lakes, and Energy (EGLE).

During the period from January 1 to June 30, 2020, the Drinking Water and Environmental Health Division (DWEHD) of EGLE cited the Battle Creek-Verona System for an excursion for a “Failure to Maintain Corrosion Control Treatment” on 15 days. An excursion occurs when monitoring data are out of the daily value range for one of the measured water quality parameters on more than nine days during a six-month period. The events that led to these excursions have been investigated, dosing adjustments have been made, standard operating procedures have been updated, and treatment staff have been fully trained on the matter to prevent this from happening again. Battle Creek routinely samples water for phosphate three times each day from the plant tap and every quarter from 10 locations in Battle Creek, three locations in Emmett Township, and three locations in the City of Springfield water distribution systems. Battle Creek will continue to perform the state-designated sampling schedule to ensure it is maintaining the state-designated ranges for water quality parameters such that it will have successfully met the state standards at the end of the December 31, 2020, monitoring period. Additional information regarding this is available on the city’s Web site: <http://www.battlecreekmi.gov/227/Water-Wastewater>.

During the period from July 1 to December 31, 2020, our downstream, wholesale customer, Emmett Township, was notified by EGLE of a violation for failing to submit the required Lead and Copper Report form for compliance monitoring by the specified deadline. Emmett Township and the City of Battle Creek do not believe that missing this reporting deadline had any impact on public health and safety. Emmett Township promptly investigated the correspondence with EGLE and confirmed that a portion of the reporting requirement had not been submitted. Emmett resubmitted the sampling results and the completed form to EGLE in March of 2021 to be in compliance with this rule. Emmett Township has already taken the steps to ensure that adequate reporting will be performed in the future so this oversight will not be repeated.

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 systems’ 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 Well Field since 2003.) 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.

Lead and Other Service Lines

- 4,532 lead services in the City of Battle Creek
- 14,765 services of other materials in the City of Battle Creek
- 19,297 total services in City of Battle Creek
- 336 lead/unknown services in Emmett Township
- 995 total services in Emmett Township
- 4 lead services in City of Springfield
- 1,652 services of other materials in City of Springfield
- 78 unknown services in City of Springfield
- 1,734 total services in City of Springfield

