

ANNUAL WATER QUALITY REPORT

Water testing performed in 2006



Proudly Presented By:

CITY OF BATTLE CREEK

PWS ID#: 0000450

What You Can Do to Help Protect Our Water Resources

- Household hazardous waste: Never dump items such as used motor oil, fuel products, cleaners, paints, and pesticides on the ground or down the drain. They can contaminate groundwater and surface water. For a listing of household hazardous waste collection sites and dates in Calhoun County, contact the Calhoun County Environmental Health Department at (269) 969-6341 or visit the Web site <http://www.calhouncrc.net/>.
- Septic systems: If you have a septic system, have it checked every two to three years to ensure it is working properly.
- Fuel storage tanks: Leaking of storage tanks both above and below ground level is a major source of contamination. Check tanks regularly for leaks.
- Abandoned wells: Properly close any abandoned wells on your property. They can carry contaminants directly to groundwater. Call (269) 966-0712 for information on the city's free Abandoned Well Closure Program within the Verona Wellhead Protection Area.
- Landscape with nature: Try landscaping with plants native to Michigan. They are well suited to our climate and are resistant to pests. They can reduce the need for irrigation and fertilizer application resulting in less runoff and more water conservation.
- Pet waste: Because pet waste can be high in bacteria and nutrients, it should be disposed of in a toilet or trash can.
- Don't guess; soil test: Have your lawn soil analyzed for nutrient information. Misapplication of fertilizers can cause these products to make their way into both surface waters and groundwater.

Visit the Web site www.bcwater.org for more information.

Continuing Our Commitment

Once again we proudly present our annual water quality report. This edition covers all testing completed from January 1 through December 31, 2006. We are pleased to tell you that our compliance with all state and federal drinking water laws remains exemplary. As in the past, we are committed to delivering the best quality drinking water. To that end, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all of our water users.

For more information about this report, or for any questions relating to your drinking water, please call David Rich, Water Superintendent, at (269) 966-3481. The following contacts may be used for non-Battle Creek residents: City of Springfield, (269) 965-2354; Bedford Township, (269) 968-6971; Emmett Township, (269) 968-0241.



Clean Water Clyde

Important Health Information

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 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.



Substances That Might Be in Drinking 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 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.

What Is Groundwater?

Groundwater is water beneath the surface of the earth that fills openings, known as pore spaces, in sand, gravel, or fractures of 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, in the Verona Well Field. The water is sent to the Verona Water Treatment Plant, which removes iron and manganese from the water. The treated water is then pumped throughout the metro area from the Verona Pumping Station. In addition, the City of Battle Creek maintains a supplemental well field, also in the Marshall Sandstone Aquifer, for emergencies.



How Is Our Drinking Water Protected?

To protect the drinking water of our area, the City of Battle Creek adopted a Wellhead Protection Plan (WHPP) for both of our well fields. The WHPP was developed by a committee consisting of citizens with an interest in safeguarding our drinking water resources. Major components of the plan are education and outreach, including the two following programs:



**OLD STEEL
WELL CASINGS
CORRODE**

**DEFEAT NATURAL
PROTECTIVE
FORMATIONS**

**FACILITATE
MIGRATION OF
CONTAMINANTS**



- **ABANDONED WELL CLOSURE PROGRAM**
(for properties located within the Verona Wellhead Protection Area)

Do you have an unused (abandoned) water well? Now is the time to plug it!

Why should you plug your well?

1. You will help protect your drinking water.
2. Unless you are using the well, state law requires you to have it plugged.
3. Plugging it is free, while grant funding is available.
4. And...the City of Battle Creek will PAY YOU \$75 when your well is plugged!

- **FACILITIES RISK EVALUATION PROGRAM**

Small businesses located in either wellhead protection area have the opportunity to participate in a FREE, VOLUNTARY, and CONFIDENTIAL program, known as the Facility Risk Evaluation Program. Participants will receive an environmental evaluation of their business performed by a professional consultant. In addition, emergency spill plans may also be included for qualifying businesses. A business's environmental performance is increasingly viewed as an essential part of good business and good citizenship. Businesses within the city's wellhead protection areas have a special responsibility to follow pollution prevention measures; the health of our community's drinking water depends on it.

Call (269) 966-0712 for information about both programs.

Where Does My Water Come From?

As its sole source of drinking water, the City of Battle Creek uses groundwater from the Marshall Sandstone Aquifer at the Verona Well Field located in the northeast section of the city. Our groundwater supply is part of the Kalamazoo River watershed, which covers an area of roughly 2,020 square miles. Most of the watershed is covered with agricultural and forested/open land with urban development comprising nearly 10% of the land area. To learn more about our watershed on the Internet, visit www.bcwater.org, www.kalamazooriver.net, or the U.S. EPA's Surf Your Watershed Web site at www.epa.gov/surf.

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 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. 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 David Rich, Water Superintendent, at (269) 966-3481.

How Is My Water Treated and Purified?

The treatment process consists of a series of steps. First, water is drawn from a groundwater aquifer and is sent to the iron and manganese removal system. Once there, air is added to the water, which causes the iron and manganese to form into large particles. Next, the water is filtered to remove the iron and manganese particles. After filtration, a phosphate product is added to keep the water from corroding customers' plumbing. The water is then sent to an underground reservoir. Finally, 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.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. Although all of the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water.

The state requires us to monitor 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.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2003	2	2	0.16	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2006	[4]	[4]	0.435	0.37–0.47	No	Water additive used to control microbes
Fluoride (ppm)	2006	4	4	1	NA	No	Erosion of natural deposits; Water additive to promote strong teeth; Discharge from fertilizer and aluminum factories
Selenium (ppb)	2003	50	50	2	NA	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
TTHMs [Total Trihalomethanes] (ppb)	2006	80	NA	65	49–65	No	By-product of drinking water chlorination
Total Coliform Bacteria (% positive samples)	2006	5	0	1	NA	No	Naturally present in the environment

Tap water samples were collected from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	ACTION LEVEL	MCLG	AMOUNT DETECTED (90 th %tile)	SITES ABOVE ACTION LEVEL	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2006	1.3	1.3	0.621	0	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2006	15	0	2	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Sodium (ppm)	2006	14	NA	Naturally present in the environment; Road salting; Septic systems

Table Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which 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

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).

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.