

OUR Revised 2017 CCR

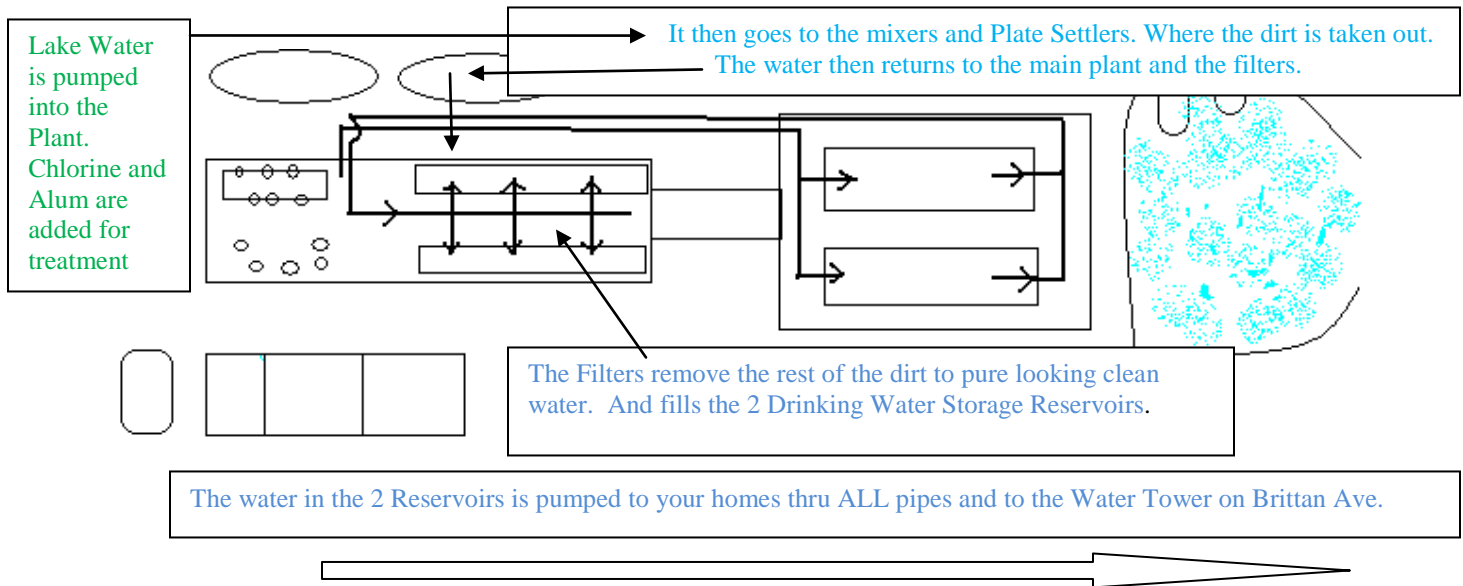
With a Lead & Copper Sampling Notice

And a MDEQ Pilot Grant for Lead Service Line Asset Management see last 2 pages.

City of Benton Harbor Utility Services Department's 2017 Consumers Confidence Report

Contact Us: Michael O'Malley, Benton Harbor Water Plant (269) 927-8471 Press 2
 Darwin Watson, Benton Harbor City Manager (269) 927-8401
 Kaye Jenkins, Utility Billing Payment Center (269) 934-7638

A diagram of the equipment and how we make Lake Michigan Safe for Drinking at the Benton Harbor Water Plant



2017 Benton Harbor Water Quality Report

The Benton Harbor Water Plant uses Lake Michigan as its source. There are presently 5 water plants in Berrien County that use Lake Michigan as its source, including: New Buffalo, Bridgman, Lake Township, St. Joseph, and Benton Charter Township Water Plant. Lake Michigan is a surface water supply and is vulnerable to a wide range of contaminants. Because of this the EPA and MDEQ have very strict guidelines for the proper operation and testing of the water processed in these types of plants. Our Lake Michigan water is collected through a 36" pipeline that extends 4800 feet west of the water plant's shoreline. The Benton Harbor Utility Service Department's number one priority is to provide safe, high quality water to all of its customers. In pursuit of that mission, we consistently meet, and often exceed, federal and state standards for safe water.

The State MDEQ performed an assessment of our source water in 2003 to determine the susceptibility or the relative potential of contamination. The susceptibility rating is on a six-tiered scale from "very-low" to "high" based primarily on geologic sensitivity, water chemistry and contaminant sources. The susceptibility of our source is moderately high. This is due to the fact that the source water area for the Benton Harbor intake includes 1,236 potential contaminant sources, 121 listed potential contaminant sources within the susceptible area, plus urban and agricultural runoff from the St. Joseph River watershed in the St. Joseph River. A copy of the full report can be obtained by calling the water plant at (269) 927-8471.

General Health Information Provided by EPA

To ensure that tap water is safe to drink, EPA prescribes limits on the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

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 and radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- A. Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- B. Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- C. Pesticides and herbicides, which may come from a variety of sources such as agriculture, storm-water runoff, and residential uses.
- D. Organic chemical contaminants, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, and can also, come from gas stations, urban storm-water runoff and septic systems.
- E. Radioactive contaminants, which can be naturally occurring or the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, EPA prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

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 can be particularly at risk from infections. These people should seek advice about drinking water from their healthcare providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline (800-426-4791).

National Primary Drinking Water Regulation Compliance

For more information about our water quality, or to receive an additional copy of this report, please contact the Water Superintendent, Michael O'Malley (269) 927-8471 or e-mail to momalley@cityofbentonharbormi.gov.

Tours of the Water Plant are easily arranged for school or community groups by contacting the plant. For more information about safe drinking water, visit the U.S. Environmental Protection Agency (EPA) at www.epa.gov/safewater

Water Quality Detect Tables

Benton Harbor water personnel routinely monitor over 80 potential contaminants in our drinking water according to Federal and State laws. The following table lists detects of regulated contaminants found in our water for the year beginning January 1, 2017 and ending December 31, 2017, unless otherwise noted. Other contaminants are required as regulated monitoring, that the Water Plant personnel cannot do. These are sampled and sent to the MDEQ laboratory in Lansing and listed in the tables with various dates assigned.

Regulated Monitoring at the Plant Done at the MDEQ Laboratory in Lansing, MI.

Detected Substance	Highest Level Allowed (MCL)	EPA Goal Level (MCLG)	Highest Level Detected (RAA)	Range	Violation Yes or No	Date of Sample	Likely Source of Contaminants
Arsenic▼	10*	0*	Less than 2 ppb	NA	No	9/6/10	Erosion of natural deposits; Runoff from Orchards; Runoff from glass and electronics production waste.
Nitrate (ppm)	10	N/A	0.0	0.0 to 0.12	No	8/24/17	Naturally present in the environment.
Fluoride (ppm)	4	4	0.44	0.3 to 0.70	No	8/24/17	Water additive, which promotes strong teeth.
Chlorine Residual	4	MRDL=4	1.86	0.25 to 1.99	No	2017	Disinfectant
TOC**	TT	N/A	1.97	1.35 to 1.97	No	2017	Naturally present in the environment
Bromodichloromethane (ppb)	80	N/A	1.7	1.7	No	11/8/17	Formed when chlorine is added to water containing naturally occurring organic material.
Chlorodibromomethane (ppb)	80	N/A	2.4	2.4	No	11/8/17	Formed when chlorine is added to water containing naturally occurring organic material.
Chloroform (ppb)	80	N/A	5.6	5.6	No	11/8/17	Formed when chlorine is added to water containing naturally occurring organic material.
Total Tri-halomethanes (ppb)	80	N/A	7.5	7.5	No	11/8/17	Formed when chlorine is added to water containing naturally occurring organic material.

Regulated Monitoring Distribution System (Stage 2 Disinfection Byproduct Rule) Testing in 2016

Detected Substance	LRAA is locational Running Annual Average	Benton Harbor city Samples LRAA Site 1	Benton Harbor city Samples LRAA Site 2	Likely Source of Contaminants. This testing is being conducted over a 12 month period to determine the vulnerability of various points in the 2 largest distribution systems served by the Benton Harbor Water Plant. Results listed are for tests run October to December 2008 only.
TTHM (ppb)	Each site is measured in ppb	50.8	57.2	Formed when chlorine is added to water containing naturally occurring organic material
HAA5 (ppb)	Each site is measured in ppb	33.3	26.5	Formed when chlorine is added to water containing naturally occurring organic material

TTHM's are Total Trihalomethanes and HAA5's are Haloacetic Acids. They form when Chlorine is in contact with organic matter over time. The results are averaged at each location as a running annual average (LRAA) to assure the community that the waters are properly disinfected and do not pose a threat from these by-products.

We will be Adding this DBP information a CCR and full details later on in the web site.

Long Term 2 (Enhanced Surface Water Treatment Rule) (LT2ESWTR) Testing in 2008-2009 (Previous Data Kept in CCR)

Detected Substance	Largest Number Detected	Range of organisms detected	Likely Source of Contaminants is Lake Michigan. Lake Michigan testing is was conducted over a 24 month period that began April 2008. Testing is complete in 2009
Cryptosporidium (# of organisms)	3	0 to 3	Open Lake Michigan. Cryptosporidium are microbes found in open water sources.
<i>E. coli</i> (# of organisms)	7	0 to 7	Open Lake Michigan. <i>E. coli</i> are bacteria found in open water sources.
Giardia	3	0 to 3	Open Lake Michigan. Giardia are microbes found in open water sources.

Long Term 2 (Enhanced Surface Water Treatment Rule) (LT2ESWTR) Testing in 2008-2009 Has Been Renewed in 2017.

Detected Substance	Largest Number Detected	Range of organisms detected	Likely Source of Contaminants is Lake Michigan. Lake Michigan testing is was conducted over a 12 month period that began October, 2017 to date (June 13,2018)
<i>E. coli</i> (# of organisms)	42	< 0.2 to 42	Open Surface Water of Lake Michigan. <i>E. coli</i> are bacteria found in open water sources.

Previously, in 2008-2009 Benton Harbor was a much larger water system and had to sample for actual Cryptosporidium in Lake Michigan. After Benton Charter Township left in 2010; and St. Joseph Charter Township (Fairplain) left in 2014, the Benton Harbor Water Plant now serves only City Residents which have been officially counter by the MDEQ as a population of 8,800. Now in the recent renewal of the LT2ESWTR Smaller Systems (less than 10,000 residents) are required to Sample for *E.coli* as a surrogate to Actual Cryptosporidium organisms. This testing is quite a less expensive and is conducted locally by water plant personell and a local lab every other Wednesday for 12 consecutive months that began in October, 2017.

The results are being submitted to MDEQ and will be completely evaluated late in 2018. There have been 18 Wednesday samples taken to date (June 13, 2018).

Turbidity Monitoring at the Plant

Water Clarity	Highest Level Allowed (MCL)	EPA Goal Level (MCLG)	Highest Level Detected	Range	Violation Yes or No	Date of Sample	Likely Source of Contaminants
Filter Effluent NTU	0.3* or no sample above 1.00	N/A	0.27	0.04 to 0.27	No	No	Soil runoff.

* Turbidity is a measure of the cloudiness of the water.

Total Organic Carbon (TOC) Reduction at the Water Plant.

TOC Reduction	Average Level reduction from Raw to Tap as %	EPA Goal Level (MCLG)	Lowest Level of Reduction as Percent	Range	Violation Yes or No	Date of Sample	Likely Source of Contaminants
TOC Reduction	88 %	N/A Not Contaminate	53%	53% to 100%	NO	Monthly all Year	Naturally occurring in Open Surface Source Waters. Lake Mi.

This is new to the Benton Harbor CCR. I am unsure if it is required, but I added it anyway, since near the end of 2017 the water treatment system was un-able to remove the adequate amount of TOC from the Raw Water to the Tap Water.

TOCs are every day occurring organic chemicals, most are an important part of our lives, but certain types of TOCs have been shown to be a key component of Disinfection by Products (DBPs). It is a measure of the plant's ability to keep DBPs low as the formation of the DBPs are from Organic Chemicals in contact with the Chlorine we use for disinfection and grow over time.

Other Water Quality Parameters of Interest

At the plant we routinely perform other water quality tests. These tests are not for official reporting, but are useful when describing the quality of our drinking water.

These water quality characteristics have been scanned from our Complete 2017 Data Compilation and is available as an addition to this year's CCR later on the Web Site.

Parameter	2017 Average	2017 Range	Units
Chlorine	1.66	0.25 to 1.99	Mg/L as free Cl-
PH	8.0	7.3 to 8.2	pH units
Total Alkalinity	112	93 to 133	Mg/L as CaCO ₃
Total Hardness	150	112 to 208	Mg/L as CaCO ₃
Calcium Hardness	42	30 to 67	Mg/L as Ca
Magnesium Hardness	11	2 to 18	Mg/L as Mg
Chloride	25.2	22.5 to 32.5	Mg/L as Cl-
Fluoride as F-ion	0.44	0.23 to .70	Mg/L as F-ion

- For Customers owning a new dishwasher the Benton Harbor average water hardness is *8-10 grains per gallon*.

Unregulated and Special Monitoring

Detected Substance	Highest Level Allowed (MCL)	EPA Goal Level (MCLG)	Level Detected	Likely Source
Sodium	N/A	N/A	11	Naturally present in the environment
Sulfate	N/A	N/A	26	Naturally present in the environment
Fluoride	2 Secondary and 4 Primary	N/A	0.12	Water Additive to help protect teeth from Dental Caries and for Public Health
Cyanide	< 0.2	N/A	<0.02	No
				9/6/2016

A sample was taken at the Water Plant on September 9, 2016. A laboratory in South Bend analyzed it for total Cyanide and did not detect any. Cyanide is a dangerous chemical and the EPA is determining how it may be monitored in water systems in the future.

Definitions

- 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. MCLG's allow for a margin of safety.
- MRDL** Maximum Residual Disinfectant Level or MRDL means 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, or MRDLG, means 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.
- AL** Action Level: The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements, which a water system must follow.
- PPM** parts per million or milligrams per liter (mg/l)

PPB parts per billion, or micrograms per liter (ug/l)
NTU Nephelometric Turbidity Units, a measure of the cloudiness of water
N/A Not applicable
RAA Running Annual Average.
LRAA Locational Running Annual Average.
TT Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

Other Water Quality Parameters of Interest

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Parameter	2017Average	2017 Range	Units
Chlorine	1.66	0.25 to 1.99	Mg/L as free Cl-
PH	8.0	7.3to 8.2	pH units
Total Alkalinity	112	93 to 133	Mg/L as CaCO3
Total Hardness	150	112 to 208	Mg/L as CaCO3
Calcium Hardness	42	30 to 67	Mg/L as Ca
Magnesium Hardness	11	2 to 18	Mg/L as Mg
Chloride	25.2	22.5 to 32.5	Mg/L as Cl-
Fluoride as F-ion	0.44	0.23 to .70	Mg/L as F-ion

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Lead and Copper and the requirement for revision from the original, 2017 CCR.

Key Page about Benton Harbor Water System Lead and Copper Sampling, Please consider being a Part!

Distribution System Monitoring Lead and Copper. Last Official Test Date 2015. A new round is this year, 2018!

*Denotes New Required Language from the MI Department of Environmental Quality (MDEQ)

Detected Substance	Highest Level Allowed (AL)	EPA Goal Level (AL)	90 th Percentile Result Detected	Range	Sites Found Above AL of 15 ppb.	Violation	Likely Source of Contaminants
Lead (ppb)	15.0	0	12	0 to 38	2	No	*Lead services lines, corrosion of household plumbing including fittings and fixtures; erosion of natural deposits.*
Copper (ppb)	1300	1300	0	0 to 670	0	No	Corrosion of Household plumbing

Lead and copper monitoring began in the early 1990's. The 9th round of Benton Harbor testing was conducted in September 2015. The 2 sites above the EPA action level were more than 12 ppb and one at 38 ppb. All homes on the list of sites are notified of their results and the site with 38 ppb had their water line replaced with copper. The next round of testing #10 **is this year; 2018.**

Information about lead: 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. Benton Harbor is 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 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 or at <http://www.epa.gov/safewater/lead>.

*A New Message, Please read:

The Michigan Legislature has revised the Safe Drinking Water Act of 1976;

In the new Act there are many changes regarding Lead and Copper Issues. One of those changes is for the Community Water Supplier to tell the Water Customers about the Major Source of Lead in Drinking Water and some Additional Health Concerns about Lead .

*1st, the additional Health Effects Statement, required: * 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*.

*2nd Major Source of Lead in Drinking Water: *Lead services lines, corrosion of household plumbing including fittings and fixtures; erosion of natural deposits* (Required Language in Michigan's revised ruling.)

MDEQ language above; but in simpler terms for you and me;

- Lead in drinking water does not come from Lake Michigan; or the Water Treatment Plant in Jean Klock Park; or (perhaps to a very very small degree) the water in the mains that move the water all around the City.
- It does come from lead individual service lines from the main to the house (underground), and including any lead piping in the house and the plumbing fixtures (faucets and such) in the house.

Years ago, the United States Environmental Protection Agency (USEPA) determined that lead and copper could leach into still water that has been sitting in household water services and plumbing. To a degree that may be detrimental to people's health.

(Insert Lead Information Page)

So, when you go to bed, work, or have been gone for a day or more, the water has been sitting very still in the service line from the water main to your house and in the plumbing of your house.

It is still under pressure at the watermain, so it holds still all the way to the faucets, laundry connections, showers, and toilets. All this water adds up to maybe a few quarts or a gallon, depending on the size and length of all the piping.

This is why myself and all water professionals will tell you to:

Remember, to assure yourself that your glass of water will not contain Lead or other heavy metals, let the water run until it feels cool and then fill your glass.

This is also why the US EPA instructed the water departments to have the home owner draw a Lead and Copper sample from a faucet you typically drink water from. They required a Liter of water in the past and in Michigan the officials are looking for additional sampling up to approximately 1 ½ gallons (or approximately 6-liters).

As we mentioned above, we will soon be conducting Lead and Copper Sampling. This is the official 10th round of tri-annual sampling. Sampling must be conducted at homes where samples have been collected through the years, the last round was 2015. If you were a participant in that round of sampling, please contact us at the Water Plant (269) 927-8471 press 2 or email to Momalley@cityofbentonharbormi.gov

In the upcoming testing we want to include at least:

1. 10 samples from homes that have had their lead service line replaced by City Water Crews in the past 3-years. If you are one of those homeowners and want to be included on this list of 10, please contact us at the Water Plant (269) 927-8471 press 2 or email to Momalley@cityofbentonharbormi.gov
2. If your household was not sampled in 2015 and you also want to be included in the upcoming (2018) round, please contact us at the Water Plant (269) 927-8471 press 2 or email to Momalley@cityofbentonharbormi.gov

The City's Water Department must conduct a minimum of 30 samples.

Please Note: If a household, Home Owner or Renter would like to participate in the Lead and Copper Sampling for 2018, we must ask that the household be willing to:

1. Sign up by calling or emailing the water department.
2. Follow the instructions exactly as described.
3. That include 4 key Points:
 1. Sample bottle must be used and paperwork filled out. A bottle will be delivered to you or left on your door step.
 2. Water in the household must sit a minimum of 6-hours before sampling. This can be done either by taking the sample 1st thing in the morning when you get up; or immediately after your return home from work after about 6-hours.
 3. Sample must be **The 1st Draw after sitting**. So immediately after the water has rested for 6-hours a sample must be taken. This way the EPA Exact measurement can be achieved.
 4. The sample must be picked up by the water department, soon after it is taken. You can leave it on your door step, if you need to go away.

An exciting grant has been made available to the City of Benton Harbor's Water Department for Lead Pipe Removal. The City was awarded a \$285,000 Pilot Grant from the DEQ to identify and Replace Lead or Galvanized service lines from the Roadway to the Home.

This task will take about a year or so and will involve cooperation between the City and the Resident, but is well worth the investment, **Please Join Us.**

The Water Department, City Management, our Engineer have begun the process of lining up the necessary documentation to use this pilot grant money to better serve our drinking water customers. More information will be available soon. Any homeowner that is interested in a program to investigate and potentially replace their lead service is asked to contact the city's Water Department (269-934-7638) or email Mike O'Malley at momalley@cityofbentonharbormi.gov. Please include your name; address; contact email and/or phone; and whether you are a home owner or renter.

Thank you in advance for your participation.