BENTON CHARTER TOWNSHIP

ANNUAL Water Quality Report for 2021

JUNE 2022

The purpose of this report is to provide you with information about the quality of the drinking water produced by the Benton Charter Township Water Treatment Plant during the 2021 calendar year. This information is a snapshot of the quality of the water we provided to you in 2021. Included are details about where your water comes from, what it contains, and how it compares to United States Environmental Protection Agency (U.S. EPA) and Michigan Department of Environment, Great Lakes and Energy (EGLE) standards. We welcome this opportunity to provide you with the information about your water in this report which is prepared and distributed annually. Questions regarding this report can be directed to the Benton Charter Township Water Plant.

Raw Water Pump Station

Your water comes from Lake Michigan, an excellent raw water source. Lake Michigan water flows through an off shore intake structure and pipeline to a shore well pump station where the water is screened to remove the largest particles. Pumps at the shore well station transfer the untreated raw water to the treatment plant. At the treatment plant the raw water is filtered through membrane microfiltration units and sodium hypochlorite, which contains chlorine, is applied for disinfection. Chlorine is the most commonly used disinfectant because of its effectiveness, cost, and availability. Fluoride is also added for dental protection. After filtration, the treated water enters the storage reservoir from which another set of pumps transmits the finished tap water through the distribution system to the community.

Benton Charter Township Water Treatment Plant

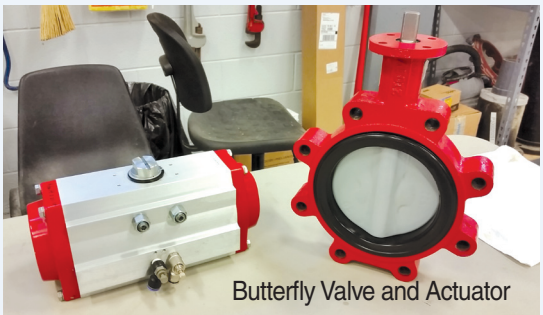
Water Treatment Plant and System Maintenance

Water Treatment:


Filters

The Township's Water Treatment Plant uses microfiltration to filter the water and sodium hypochlorite (bleach) as a disinfectant. The filter modules are capable of removing particles larger than 0.04 microns which includes Cryptosporidium, Giardia Cysts, bacteria, and many other microorganisms. In comparison, a human hair ranges in size from 17 – 181 microns. The sodium hypochlorite deactivates microorganisms that are small enough to pass through the filter pores.

Maintenance at the water plant is a continuous exercise. There are many parts, and pieces of equipment that make up the different processes. Individual parts and processes include things like: valves, valve actuators, chemical feed pumps, neutralization pumps, air compressors, and monitoring instruments like gauges and level indicators. All this equipment has an expected useful life which we try to prolong with preventive maintenance. Our Capital Improvement Plan guides us on when to repair/replace more expensive items and how to budget for them.


Butterfly Valve and Actuator

Distribution System:

The Township has over 80 miles of water mains ranging in size from 4" to 20". There are 1,100 valves throughout the system and 704 fire hydrants. BCT serves over 2300 residential households and over 500 commercial customers with meter sizes ranging from ¾" to 8".

Also, the distribution system includes 3 water storage facilities. A 1 Million Gallon (MG) reservoir at the water plant, a 0.8MG reservoir in the northern part of the system, and the 4MG Euclid Standpipe.

Distribution System Projects and Maintenance:

The Township is looking into the possibility of reconfiguring the water storage in the system with new water towers. The goal of this project would be to improve water quality and system reliability.

Benton Charter Township is fortunate to be in a position to continually make improvements to its critical water system infrastructure.

Galvanized

A dull, silver-gray color. Use a magnet - strong magnets will typically cling to galvanized pipes.

Copper

The color of a copper penny.

Plastic

White, rigid pipe that is joined to water supply piping with a clamp.

Lead

A dull, silver-gray color that is easily scratched with a coin. Use a magnet - strong magnets will not cling to lead pipes.

Lead in Drinking Water:

Information About Lead:

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and chiildren 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 develp kidney problems or high blood pressure. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Benton Charter Township Water Treatment Plant 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 (800-426-4791)** or at **http://www.epa.gov/safewater/lead**.

How Lead Gets into Drinking Water:

Lead is not present in the BCT Water Plant treated water when the water is pumped from the plant into the distribution system. Lead can enter drinking water, when plumbing materials that contain lead corrode, releasing the lead into the water. The most common source of lead in drinking water are lead pipes, brass or chrome-plated brass faucets and fixtures, and plumbing with lead solder. In homes with lead pipes that connect the home to the water main, also known as lead services lines, these pipes are typically the most significant source of lead in the water. Lead pipes are more likely to be found in older communities. Among homes without lead service lines, the most common problem is with brass or chrome-plated brass faucets and plumbing with lead solder. Homes built before 1986 to 1988 are more likely to have pipes, plumbing fixtures, and solder containing lead than newer homes and homes with updated plumbing fixtures and piping.

In 2019 Benton Charter Township conducted a preliminary Distribution System Materials Inventory (DSMI) based on available information to ensure that distribution system components and service lines are properly identified and inventoried. A final DSMI will be completed by the end of 2024. As of March, 2022, there were 17 known lead service lines and 700 service lines of unknown material. The total number of service lines in the BCT distribution system is 2,877.

Monitoring and Reporting to EGLE Requirements:

The State and EPA require us to test our water on a regular basis to ensure its safety.

We will update this report annually and will keep you informed of any problems that may occur throughout the year, as they happen. Copies of this report are available at the Benton Charter Township Hall.

We invite public participation in decisions that affect drinking water quality. Benton Charter Township Board Meetings are held the 1st and 3rd Tuesday of each month at 5:30 pm. For more information about your water, or the contents of this report, contact the Benton Charter Township Water Treatment Plant at 269-925-4057. For more information about safe drinking water, visit the **U.S. Environmental Protection Agency at www.epa.gov/safewater/** or the **Michigan Department of Environment, Great Lakes, and Energy (EGLE)** at **https://www.michigan.gov/egle/**

Fluoride in Drinking Water:

In 2021 the Michigan Department of Health and Human Services awarded Benton Charter Township a Water Fluoridation Quality Award from the U.S. Center for Disease Control and Prevention (CDC). Fluoridation is the adjustment of fluoride in the drinking water to a level that is affective for preventing tooth decay. The award recognizes those communities that achieved excellence in community water fluoridation by maintaining a consistent level of fluoride in drinking water throughout 2020.

According to the CDC, water fluoridation is one of the best investments that a community can make in maintaining oral health of its citizens. It is equally as effective in preventing cavities in children and adults. Fluoridation is also highly cost effective. Studies continue to show that for every dollar communities invest in water fluoridation, twenty dollars are saved in dental treatment cost.


Water Fluoridation Quality Award

BENTON TOWNSHIP
Michigan

The Centers for Disease Control and Prevention (CDC)'s support for community water fluoridation is based on more than 75 years of experience and research to show that water fluoridation is safe and effective for promoting good oral health. CDC commends this water system for providing high-quality water fluoridation for 12 consecutive months in 2020 representing a high level of operator care and accomplishment.

Casey Flannan, MPH
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National Center for Chronic Disease
Prevention and Health Promotion
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Theresa "Tracy" J. Boehmer, P.E.
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National Center for Chronic Disease
Prevention and Health Promotion
Centers for Disease Control and Prevention

CDC
U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

75 years
COMMUNITY WATER FLUORIDATION

2020

General Information

Contaminants and their presence in 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 **EPA's Safe Drinking Water Hotline (800-426-4791)**.

Vulnerability of sub-populations: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune systems disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the **Safe Drinking Water Hotline (800-426-4791)**.

Sources of drinking water: The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. Our water comes from Lake Michigan, a surface water. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, 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:

- **Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
- **Inorganic contaminants**, such as salts and metals, which can be naturally-occurring or 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 and residential uses.
- **Radioactive contaminants**, which can be naturally occurring or be the result of oil and gas production and mining activities.
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which provide the same protection for public health.

Water Quality Data

The table on the facing page lists all the drinking water contaminants that were detected during the 2021 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done January 1 – December 31, 2021. The State allows the monitoring of certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. All of the data is representative of the water quality, but some are more than one year old. Chlorine is a monthly average. TTHM and HAA5 are sampled quarterly with the results reported as "Running Annual Averages" (RAA).

Terms and abbreviations used on the facing page

Maximum Contaminant Level Goal (MCLG): 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.

Maximum Contaminant Level (MCL): 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.

Maximum Residual Disinfectant Level (MRDL): 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.

Maximum Residual Disinfectant Level Goal (MRDLG): 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.

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

N/A: Not applicable

ND: not detectable at testing limit

ppm: parts per million or milligrams per liter

ppb: parts per billion or micrograms per liter

ppt: parts per trillion or nanograms per liter

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

PFAS in Drinking Water

Per- and polyfluoroalkyl substances (PFAS), sometimes called PFCs, are a group of chemicals that are resistant to heat, water, and oil. PFAS have been classified by the United States Environmental Protection Agency (U.S. EPA) as an emerging contaminant on the national landscape. For decades, they have been used in many industrial applications and consumer products such as carpeting, waterproof clothing, upholstery, food paper wrappings, fire-fighting foams, and metal plating. They are still used today. PFAS have been found at low levels both in the environment and in blood samples from the general U.S. population. These chemicals are persistent, which means they do not break down in the environment. They also bioaccumulate, meaning the amount builds up over time in the blood and organs. Although our understanding of these emerging contaminants is constantly evolving, elevated levels of PFAS have the potential to cause increased cholesterol, changes in the body's hormones and immune system, decreased fertility, and increased risk of certain cancers. Links to these health effects in humans are supported by epidemiologic studies and by laboratory studies in animal models. Michigan Department of Environment, Great Lakes, and Energy (EGLE) has coordinated a statewide initiative to test drinking water from all schools that use well water and community water supplies for PFAS. EGLE is taking this precautionary step to determine if public health actions are needed. **For 2021, PFOS was not detcted and PFOA was detected at 2ng/L. The 2ng/L of PFOA is well below the limit of 8ng/L. 1ng/L is equal to 1 part per trillion**.

If any resident has additional questions regarding this issue, the State of Michigan Environmental Assistance Center can be contacted at 800-662-9278. Representatives may be reached to assist with your questions Monday through Friday, 8:00 AM to 4:30 PM. Also available is the Michigan PFAS Action Response Team (MPART) web site: **https://www.michigan.gov/pfasresponse/**

Benton Charter Township

Regulated Contaminant	MCL, TT, or MRDL	MCLG or MRDLG	Your Water	Range	Year Sampled	Violation Yes/No	Typical Source of Contaminant
Inorganic Contaminants:							
Barium (ppm)	2	2	0.02	N/A	2021	No	Discharge of drilling wastes; Discharge of metal refineries; Erosion of natural deposits
Nitrate (ppm)	10	10	0.5	N/A	2021	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Fluoride (ppm)	4	4	0.72	N/A	2021	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Sodium[1] (ppm)	N/A	N/A	9.7	N/A	2021	No	Erosion of natural deposits.
PFOA (ppt)	8	N/A	2	N/A	2021	No	Industrial discharge and/or pollution, firefighting foams, landfills, and chemical spills.
Disinfectants & Disinfection By-Products:							
TTHM - Total Trihalomethanes (ppb)	80	N/A	69.8	16 - 95	2021	No	Byproduct of drinking water disinfection.
HAA5 Haloacetic Acids (ppb)	60	N/A	27.4	12.4 - 32.0	2021	No	Byproduct of drinking water disinfection.
Chlorine[2] (ppm)	4	4	0.91	0.84 - 1.09	2021	No	Water additive used to control microbes.

Inorganic Contaminant Subject to AL	Action Level	MCLG	Your Water	Range of Results	Year Sampled	# of Sites Above AL	Typical Source of Contaminant
Lead[3] (ppb)	15 ppb	0 ppb	9 ppb	ND - 27 ppb	2021	1	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)	1.3 ppm	1.3 ppm	0.2 ppm	ND – 0.2 ppm	2021	0	Corrosion of household plumbing systems; Erosion of natural deposits

Regulated Contaminant	MCL	MCLG	Your Water	Range	Year Sampled	Typical Source of Contaminant
Microbiological Contaminant subject to Treatment Technique:						
Turbidity (NTU)	TT= 1 NTU[4] TT=percentage of samples less than 0.3 NTU	0	0.07 NTU 100%	0.02 - 0.07 NA	2021	Soil Runoff

[1] Sodium is not a regulated contaminant.
[2] The chlorine level detected, "Your Water", was calculated using a running annual average. The RAA is calculated quarterly using monthly averages for the last 12 months.
[3] 90 percent of the samples collected were at or below the level reported for your water.
[4] 1 Nephelometric Turbidity Unit (NTU), and samples for turbidity must be less than or equal to 0.3 NTUs in at least 95 percent of the samples in any month. 100% of the samples were below the TT value of 1. A value less than 95% constitutes a TT violation. The highest single measurement was 0.07. Any measurement in excess of 5 is a violation.

What are PPM and PPB?

Parts per million (ppm) and parts per billion are units used to measure the concentration of a substance in water. One part per million equals 1000 parts per billion. Following are some examples that illustrate how small a ppm and ppb actually are:

One part per million (ppm) is the same as:

- 1 inch in 16 miles
- One penny in $10,000
- 32 seconds out of a year
- 1 drop of water in a washing machine

One part per billion (ppb) is the same as:

- 1 inch in 16,000 miles
- One penny in $10,000,000
- 3.2 seconds out of 100 years
- 1 drop of water in a swimming pool

BENTON CHARTER
TOWNSHIP

1725 Territorial Road
Benton Harbor, MI 49022

Contact Information:

Benton Charter Township Water Plant
(269) 925-4057
waterplant@bentonchartertownship-mi.gov

Water Plant Operators:

NAME	CERTIFICATION
Kyle Tryan	F-1, S-4
Loren Johnson	F-3
Alex Lohraff	F-4P
Jason Burkes	F-3

Distribution System Operators:

NAME	CERTIFICATION
Mike Baldwin	S-1
Chuck Wutzke	S-3
Chase Moxley	S-4

Benton Charter Township Hall General Water Service & Billing Information:

1725 Territorial Road
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(269) 925-0616