



**BENTON  
CHARTER  
TOWNSHIP**

★ THE STAR OF SOUTHWESTERN MICHIGAN ★

# A N N U A L Water Quality Report for 2014

JUNE 2015

The purpose of this report is to provide you with information on the quality of the drinking water produced by the Benton Charter Township Water Treatment Plant during the 2014 calendar year. The federal government established the requirement for this Water Quality Report, more formally known as a Consumer Confidence Report, in 1998. We welcome this opportunity to provide you with details of where your water comes from, what it contains, and how

it compares to Environmental Protection Agency (EPA) and Michigan Department of Environmental Quality (MDEQ) standards. In addition to the required information, this report includes articles on the

construction and treatment process of the new plant. Questions regarding this report can be directed to Kyle Tryan, Water Plant Superintendent. ★

## Water Treatment Plant and System Maintenance

### Water Treatment:

The Township's water plant uses microfiltration to filter the water and sodium hypochlorite (bleach) to disinfect

it. Chlorine is the most commonly used disinfectant in the world because of its effectiveness, cost, and availability. The filters remove the debris and sediment and even some bacteria and microorganisms from the water. The sodium hypochlorite kills anything that is too small for the filters to remove.



repairs/rebuilds, hiring divers to inspect the intake in Lake Michigan, removing zebra mussels from the intake, and general routine cleaning and repairs.

One of the water plants biggest issues currently is dealing with frazil ice build-up on the underwater intake screens in Lake Michigan. When the water gets super-cooled in the

winter, small ice crystals get stirred into the lake throughout its depth. These tiny ice crystals stick to the intake screen and eventually plug them up. The township is researching adding a backup valve to the intake that would open up and allow water through, bypassing the screens if and when they become plugged with ice.

### Water Plant Maintenance:

Some of the regular maintenance performed at the water plant and pumping stations includes repairing filter modules, back-up generator maintenance, pump



Raw Water Pump Station

### Distribution System:

The township has over 77 miles of water distribution main in the system ranging in size from 4" all the way to 20".



## General Information

**Contaminants and their presence in water:** Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of 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. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS 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 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 are naturally occurring or 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 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. Many water suppliers add a disinfectant to drinking water to kill germs such as giardia and *E. coli* especially after heavy rainstorms. Your water system may add more disinfectant to guarantee that these germs are killed. ★

## 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):** 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.

**Maximum Residual Disinfectant Level Goal (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.

**N/A: Not applicable ND:** not detectable at testing limit ppb: parts per billion or micrograms per liter ppm: parts per

million or milligrams per liter pCi/l: Picocuries per liter (a measure of radioactivity).  
**Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

\* EPA considers 50 pCi/l to be the level of concern for beta particles.

\*\* Unregulated contaminants are those for which EPA has not established drinking water standards. Monitoring helps EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.

# Water Quality Data

The table below lists all the drinking water contaminants that we detected during the 2014 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, 2014. The State allows

us to monitor for 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, HAA5 and TTHM results are reported as “Running Annual Averages” (RAAs). ★

Regulated Contaminant	MCL	MCLG	Your Water	Range	SAMPLE DATE	VIOLATION YES/NO	TYPICAL SOURCE OF CONTAMINANT
Fluoride (ppm)	4	4	.69	0.60 to 1.13	2014	No	Water additives to protect teeth.
Nitrate (mg/L)	10	10	0.7	N/A	2014	No	Erosion of natural deposits; leaching from septic tanks and sewage.
TTHM - Total Trihalomethanes (ppb)	80	N/A	56.0	36.8 to 75.0	2014	No	Byproduct of drinking water disinfection.
HAA5 Haloacetic Acids (ppb)	60	N/A	25.0	11 to 49	2014	No	Byproduct of drinking water disinfection.
Chlorine (ppm)	4	4	0.98	0.70 to 1.35	Daily	No	Water additive used to control microbes.
Barium (mg/L)	2	2	0.03	N/A	2014	No	Industrial discharge and erosion of natural deposits.
Radiological Contaminants	MCL	MCLG	Your Water	Range	SAMPLE DATE	VIOLATION YES/NO	TYPICAL SOURCE OF CONTAMINANT
Combined radium (pCi/L)	5	0	1	N/A	2012	No	Erosion of natural deposits.
Special Monitoring and Unregulated Contaminant **			Your Water	Range	SAMPLE DATE	TYPICAL SOURCE OF CONTAMINANT	
Sulfate (ppm)			29	N/A	2014	Treatment process additive to help remove suspended particles in water & erosion of natural deposits.	
Sodium (ppm)			12	N/A	2014	Erosion of natural deposits.	
Contaminant Subject to AL	Action Level	MCLG	90% OF SAMPLES < THIS LEVEL	SAMPLE DATE		NUMBER OF SAMPLES ABOVE AL	TYPICAL SOURCE OF CONTAMINANT
Lead (ppb)	15	0	0.9	6/5/2014		0	Corrosion of household plumbing systems.
Copper (ppb)	1300	1300	138	6/5/2014		0	Corrosion of household plumbing systems.
Microbial Contaminants	MCL		MCLG	Number Detected	Violation Yes / No	Typical Source of Contaminant	
Total Coliform Bacteria	>1 positive monthly sample (>5% of monthly samples positive)		0	1	No	Naturally present in the environment	
Fecal Coliform and E. coli	Routine and repeat sample total coliform positive, and one is also fecal or E. coli positive		0	0	No	Human and animal fecal waste	
Substance (units)	MCL		MCLG	Highest Level Detected	Range of Detection	Violation Yes/No	Typical Source of Contaminant
Turbidity (NTU)	TT= 1 NTU TT=percentage of samples equal to or below 0.3 NTU		N/A	0.07	0.03 - 0.07	No	Soil Runoff

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. 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 or at <http://www.epa.gov/safewater/lead>.

Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system. Nephelometric Turbidity Units (NTU) is a measure of the clarity of water.

## What are PPM and PPB?

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

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

- One drop of gas in the gas tank of a mid-sized car
- One second in 11 days; one minute in two years
- One penny in \$10,000

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

- One drop in a railroad tanker car
- One second in 32 years; one minute in 1900 years
- One silver dollar in a roll of silver dollars from Detroit to Salt Lake City ★



## Contamination from Cross-Connections

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment systems containing chemicals (air conditioning systems, fire sprinkling systems, irrigation systems) or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to main breaks causing contaminants to be siphoned

out from the equipment and into the drinking water line (backsiphonage).

The most common sources of cross-connection contamination at home is outside water taps and garden hoses. Garden hoses create hazards when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools or garden chemicals. Improperly installed valves in your toilet could be a source of cross-connection contamination. Community water supplies are continuously jeopardized by cross-connections unless

appropriate valves, known as backflow prevention assemblies, are installed and maintained. We continually survey all commercial and institutional facilities in our service area to make sure that all potential cross-connections are identified and eliminated or protected by a backflow preventer.

For more information, you can call the Safe Drinking Water Hotline at (800) 426-4791 or review the Cross-Connection Control Manual at the U.S. EPA's website: [www.epa.gov/safewater/crossconnection.html](http://www.epa.gov/safewater/crossconnection.html). ★

## Water Conservation Tips for Consumers

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day? Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make

a big difference-try one today and soon it will become second nature.

- *Take short showers- A 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.*

- *Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.*

- *Use water-efficient showerhead. They are inexpensive, easy to*

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*install, and can save you up to 750 gallons a month.*

Water plants only when necessary.

Fix leaking toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it

*seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.*

Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.

Teach your kids about water conservation to ensure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!

Visit [www.epa.gov/watersense](http://www.epa.gov/watersense) for more information. ★

CONTINUED FROM PAGE 1: **Water treatment and system maintenance**

There are 1,083 valves at various locations throughout the township as well as 699 fire hydrants. The township has two ground storage facilities, one at the water plant with a capacity of 1 million gallons and another on Paw Paw



Avenue with a capacity of 800,000 gallons. There is also a stand pipe on South Euclid Avenue, the large blue tower next to I94, with a capacity of 4 million gallons. The township serves 2,153 residential customers, 406 commercial customers, and 29 industrial customers.

distribution department include fixing water main breaks, meter changes, shut-offs and turn-ons, installation of new services, the inspection of newly installed lines, flushing dead end hydrants twice a year, exercising valves to ensure smooth operation when they're needed, cross connection inspections, marking water mains and lines for MISS DIG, and responding to customer questions and problems as needed. We are on call 24 hours a day 7 days a week to respond to any emergency that may arise.

We look forward to providing you with high quality, safe drinking water for many years to come. ★

Our system is a looped grid system which means, wherever feasible, the water mains are connected to another pipe at either end to ensure proper movement of the water and to keep your water mains clean and free of stagnant water. When looping is not an option, a dead end pipe is the result. In these cases, water is flushed out of the last fire hydrant on the line twice a year to ensure fresh water is distributed to those locations.



**Distribution Maintenance:**

Regular duties of the township's



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**Mike Baldwin**

I was born and raised in St. Joseph, MI and graduated from St. Joseph High School in 2003. I have been with the township's water department since its inception in June of 2010 and was promoted to Supervisor following the retirement of John Hyzny in December of 2014. I now have a S-1 certification for drinking water after recently passing the test. I look forward to serving the residents of Benton Charter Township for many years to come with the help of my outstanding coworkers.



**Kyle Tryan**

I was born and raised just outside of Escanaba, MI. After completing a degree in water and wastewater treatment at Bay de Noc Community College in 2011, I took a job with Benton Charter Township as an operator. In May of 2014 I passed my F2 operators license which enabled me to fill the vacant superintendent position at the water plant. I am very grateful to be working with the amazing staff at Benton Charter Township and look forward to many great years of employment with them.

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**Water Treatment Plant Phone:**

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