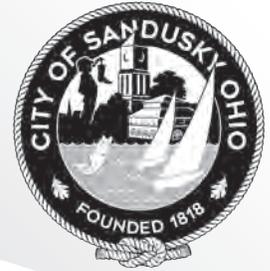


# **City of Sandusky 2017 Water Quality Report**



Sandusky Big Island Water Works (BIWW) takes great pride in providing quality water service and is pleased to present you with the annual water quality report. This annual report is the best way to assure you that your drinking water is safe and reliable.

**We are proud to report that the water provided by Big Island Water Works meets or exceeds all established water-quality standards.**

License to Operate (LTO) Status: In 2017 we had an unconditional license to operate our water system. The City of Sandusky water system meets all of the current federal and state standards for public water systems.

Sandusky Big Island Water Works has prepared the following report to provide information to you, the consumer, on the quality of our drinking water. Included within this report is general health information, water quality test results, how to participate in decisions concerning your drinking water and water system contacts.

In spring of 2017, installation and testing of dual Powdered Activated Carbon (PAC) silo feed systems was completed. The new PAC systems provide redundancy and allow us to feed ten times the levels that were possible with the previous bag feeder. PAC is one of the processes we use to remove algal toxins and other contaminants. This process helps us to combat the effects of Lake Erie algal blooms and provides flexibility if the blooms continue to worsen. An aged primary metering pole that provides electricity to the plant was replaced at the end of 2017. The water main on Lincoln St. was also replaced near the end of the year. The backflow ordinance to codify our process for protecting the water system from cross-connections was finalized. Lastly, during 2017 we continued the process of rehabilitating a Lake Erie emergency intake located four miles east of the Chaussee intake, near Sheldon's Marsh.

## CONCERNING ALGAL TOXINS IN DRINKING WATER

In 2017 our laboratory met the requirements for the analysis on drinking water samples by Ohio EPA Total (Extracellular and Intracellular) Microcystins- ADDA by ELISA Analytical Methodology. Microcystin toxin is the most common blue-green algal toxin (cyanotoxin).

The Sandusky water treatment process has been effective in removing algae toxins from Lake Erie water since testing began in 2011. In 2017 all **tap samples** tested at BIWW were **non-detect** for microcystins.

## CONCERNING LEAD IN DRINKING WATER

The water pumped from the plant does not contain lead, as it tests below the detection level for lead. Big Island Water Works adjusts the tap water pH to prevent acidic water and to maintain stability in order to reduce the chances of absorbing metals from household plumbing. The pH is tested every four hours continuously. In addition, stability tests are run weekly to ensure the pH parameters continue to provide stable water to our customers. Low 90th percentile results over more than a decade have qualified us for reduced testing. In 2015 our 90th percentile was 7.8 ug/L, well below the federal action level of 15 ug/L (parts per Billion). We are scheduled to test 2018.

It is possible that lead levels at a residence may be higher than at other homes in the community as a result of materials used in a home's private 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. Sandusky Big Island Water Works 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 at 800-426-4791 or at <http://www.epa.gov/safewater/lead>.

## WATER SOURCE

Our system draws surface water from Lake Erie. The intake is located three-quarters of a mile out in the lake off Cedar Point Chaussee. Lake water is gravity-fed into the Big Island Water Works by a 42" steel intake pipe.

## SOURCE WATER ASSESSMENT

The City of Sandusky Public Water System uses surface

water drawn from two intakes, a main intake located in Lake Erie and an emergency back-up intake located in Sandusky Bay. For the purpose of source water assessments, in Ohio all surface waters are considered to be susceptible to contamination. By their nature, surface waters are accessible and can be readily contaminated by chemicals and pathogens, with relatively short times from source to intake.

Although the water system's main intake is located offshore in Lake Erie, the proximity of several onshore sources increases the susceptibility of the source water to contamination. The City of Sandusky Public Water System's drinking water source protection area is susceptible to contamination from municipal sewage treatment plants, industrial wastewater, combined sewer overflows, home sewage disposal system discharges, open water dredge disposal operations, and accidental releases and spills, especially from commercial shipping operations and recreational boating.

The City of Sandusky Public Water System treats the water to meet drinking water quality standards, but no single treatment technique can address all potential contaminants. The potential for water quality impacts can be further decreased by implementing measures to protect Lake Erie. More detailed information is provided in the City of Sandusky Public Water System's Drinking Water Source Assessment report, which can be obtained by calling 419.627.5805 or by visiting the Ohio EPA's Source Water Assessment and Protection Program Web page at <http://www.epa.state.oh.us/ddagw/pdu/swap.html>.

## SOURCES OF CONTAMINATION TO DRINKING WATER

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, 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: (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 water 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, urban storm water runoff, and residential uses; (D) 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; (E) radioactive contaminants,

which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, USEPA 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. 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 (1-800-426-4791).

## EXPLANATION OF VIOLATIONS

There were **NO** violations in 2017.

## WHO NEEDS TO TAKE SPECIAL PRECAUTIONS?

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 system disorders, some elderly, and infants can be particularly at risk from infection. 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 (1-800-426-4791).

## VARIANCES AND EXEMPTIONS

Big Island Water Works was granted a reduced sampling schedule for lead and copper testing (in tier 1 residences). Reduced sampling was allowed because lead and copper action levels were not exceeded for 2009, 2012, and 2015 testing periods. Our monitoring requirements consist of 30 samples taken across the distribution system. We took 31 distribution system samples in 2015 and the 90th percentile results were below the action level. We will be sampling in 2018.

## FOR MORE INFORMATION

Orin A. McMonigle, Water Services Superintendent, prepared this report. He is in his 21st year of commercial water purification and holds a Class IV Water Treatment license from the State of Ohio. If you have any questions, comments, or suggestions, please contact him at 419.627.5815.

## HOW DO I PARTICIPATE IN DECISIONS REGARDING MY DRINKING WATER?

Public participation and comment are encouraged at regular meetings of the City Commission which meets twice a month as announced on [www.ci.sandusky.oh.us](http://www.ci.sandusky.oh.us)

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## The City of Sandusky Water-Quality Data Table Glossary

The table shows the results of our water-quality analyses. Every regulated contaminant we detected in the water, even in the minutest traces, is listed here. The table contains the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health, the amount detected, the usual source of such contaminant, footnotes explaining our findings, and a key to units of measurements.

### Terminology definitions:

**Action level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system shall follow.

**Cyanobacteria:** Photosynthesizing bacteria, also called blue-green algae, which naturally occur in marine and freshwater ecosystems, and may produce cyanotoxins, which at sufficiently high concentrations can pose a risk to public health.

**Cyanotoxin:** Toxin produced by cyanobacteria. These toxins include liver toxins, nerve toxins, and skin toxins. Also sometimes referred to as "algal toxin".

**"Lead threshold level,"** : as defined in rule 3745-81-01 of the Administrative Code.

**Maximum contaminant level (MCL):** The highest level of a contamination allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**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 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 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.

**Microcystins:** Liver toxins produced by a number of cyanobacteria. Total microcystins are the sum of all the variants/congeners (forms) of the cyanotoxin microcystin.

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

| PARAMETER                            | Date of Test      | MCL     | MCLG           | Detected | Unit  | Range       | Typical Source of Contaminants   | Violation |
|--------------------------------------|-------------------|---------|----------------|----------|-------|-------------|--|-----------|
| <b>INORGANIC CONTAMINANT</b>         |                   |         |                |          |       |             |  |           |
| 1. Barium                            | 4/3/2017          | 2.0     | 2.0            | 0.0170   | ppm   | N/A         | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.                                | NO        |
| 2. Nitrate                           | Monthly           | 10.0    | 10.0           | 1.6      | ppm   | 0.0 – 1.6   | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.                               | NO        |
| 3. Fluoride                          | Daily             | 4.0     | 4.0            | 0.9      | ppm   | 0.8-1.1     | Erosion of natural deposits; Water additive which promotes strong teeth. Discharge from fertilizer and aluminum factories. | NO        |
| 4. Lead*                             | 7/16/15-8/20/15   | AL=15   | 0              | 7.8      | ppb   | N/A         | Corrosion of household plumbing.   | NO        |
| 5. Copper*                           | 7/16/15 – 8/20/15 | AL=1300 | 1300           | 23.9     | ppb   | N/A         | Corrosion of household plumbing.   | NO        |
| <b>DISINFECTANT RESIDUAL</b>         |                   |         |                |          |       |             |  |           |
| 6. Chlorine                          | Continuous        | 4.0     | 4.0            | 1.2      | ppm   | 1.0-1.4     | Water additive used to control microbes.   | NO        |
| <b>MICROBIOLOGICAL CONTAMINANT</b>   |                   |         |                |          |       |             |  |           |
| 7. Turbidity                         | Continuous        | 0.30    | <0.10          | 0.17     | NTU   | 0.04 - 0.17 | Soil runoff; sediment from lake bottom.  | NO        |
| Turbidity (%meeting standard)        | 2017              | N/A     | TT             | 100%     | %     | 100%        |  | NO        |
| 8. Total Organic Carbon              | Monthly           | N/A     | TT removal > 1 | 1.33     | ratio | 1.0-1.8     | Naturally present in the environment.  | NO        |
| <b>VOLATILE ORGANIC CONTAMINANTS</b> |                   |         |                |          |       |             |  |           |
| 9. TTHMs (Total Trihalomethanes)     | Quarterly         | 80      | N/A            | 60.1     | ppb   | 23.9-80.0   | By-product of drinking water chlorination.   | NO        |
| 10. HAA5 (Haloacetic Acid)           | Quarterly         | 60      | N/A            | 18.2     | ppb   | 6.2-24.5    | By-product of drinking water chlorination.   | NO        |

#### KEY TO TABLE

AL = Action Level  
MCL = Maximum Contaminant Level  
NTU = Nephelometric Turbidity Units  
MCLG = Maximum Contaminant Level Goal

MRDL=Maximum Residual Disinfectant Level  
ND = Non-detect  
ppm = parts per million, or milligrams per liter (mg/L)  
ppb = part per billion, or micrograms per Liter (ug/L)

pCi/L = picocuries per liter (a measure of radioactivity)  
Treatment Technique (TT) = A required process intended to reduce the level of a contaminant in drinking water.

\* 90th %: Results from 31 samples collected for lead and copper in 2015 were used to calculate the 90th %. The lowest concentration for lead was <4 ppb and the highest concentration was 125 ppb (retested at 9 ppb). The 125 ppb sample was the only sample (1 of 31) to exceed the "Lead threshold level" for an individual tap water sample of 15 ppb. The 90th percentile sample for lead was 7.8 ppb. State law requires 90 % of homes test less than 15 ppb for lead. 0 of 31 homes exceeded the copper MCLG.

#### Water-Quality Table Footnotes: Health Effects Language

- Barium:** Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
- Nitrate:** Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated may die. Symptoms include shortness of breath and blue baby syndrome.
- Fluoride:** Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
- Lead:** Infants and children who drink water containing lead in excess of the action level of 15.5 ppb 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:** Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level of 1350 ppb 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.
- Chlorine:** Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
- Turbidity** is a measure of the cloudiness of water and is an indication of the effectiveness of our filtration system. The turbidity limit set by the EPA is 0.3 NTU in 95% of the daily samples and shall not exceed 5 NTU at any time. As reported above, Big Island Water Work's highest recorded turbidity result for 2017 was 0.17 NTU and lowest monthly percentage of samples meeting the turbidity limits was 100%.
- Total Organic Carbon (TOC):** TOC has no health effects. However, total organic carbon provides a medium for the formation of disinfection by-products including trihalomethanes (THM) and haloacetic acids (HAAs). Drinking water containing these by-products in the excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous systems effects and may lead to an increased risk of getting cancer.
- TTHMs (Total Trihalomethanes):** Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.
- Haloacetic Acids (HAA):** Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

## **BACKFLOW**

Backflow can affect our most valuable resource -our drinking water! Backflow is the abnormal backward flow of water from your water line back into other fixtures in your building and quite possibly back into the city water main. Under normal conditions the city water mains are pressurized and backflow will not occur. However, during a period of high demand, such as a main break or fire, it is possible for backflow to take place, because the city pressure at that time is greatly reduced. The reason this is a matter of concern is that in many businesses and industries, and even in people's own homes, there are connections made to the city water lines that feed service sinks, irrigation systems, ponds and pools, systems filled with chemicals, and many others. If the chemicals/contaminants from these systems do backflow, it is possible for this water that now contains bacteria, chemicals, or even sewage, to reach another fixture in your home or even possibly affect your neighbors' water supply. Drinking, cooking, washing, and bathing, using the contaminated water, has caused chemical burns, corrosion of pipes, illness, and even, in the worst cases, death, depending on the substance that has been pulled back into the city main. It is the property owner's responsibility to make sure that these potentially harmful connections to city water are either removed or that the proper backflow device is installed. Once installed, it must be tested every 12 months by a plumber who is certified to test backflow devices. The results of the annual test must be sent to the Water Department.

### **Here are some simple things you can do to help us protect your water:**

- Never leave a hose end in a swimming pool, sink, bucket, sump crock, or any area of standing water, where soapy or chemically-contaminated water could be siphoned back through the hose into the water supply.
- Never use spray attachments for fertilizer or pesticides that directly connect to a hose unless protected by a backflow device.
- Make sure to install hose bib vacuum breakers on outdoor spigots (available at your local hardware store!)
- Install an approved backflow device on all irrigation systems to prevent the entrance of lawn chemicals and other undesirable substances through the submerged irrigation heads.

### **Homeowners:**

Please call the water department if any of the following hazards are present on your property:

- A swimming pool/hot tub with automatic fill from City pressure
- An underground irrigation system that is connected to your city water service
- An additional source of water, such as a private well for drinking, irrigation or other purposes, a pond, or bay water for irrigation or watering.

### **Business & Industry:**

- Are there any connections of city water to equipment or piping which could contain non-potable water? They should either be removed or properly protected with a backflow device approved by the Water Department.
- Is the city water connected to a system containing pumps that could possibly overcome city pressure and cause backflow?

If you feel you may have a hazard present on your property, or would like more information on backflow, please call the Water Department Backflow Integrity Specialist at 419.627.5818 or 419.357.7856. We can schedule an appointment with you for a field survey on your property. During the survey, we can determine what measures need to be taken, if any, against the hazards present. Together, we can help ensure that you and your neighbors are properly protected from a backflow incident.

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We encourage public interest and participation in our community’s decisions affecting drinking water. Regular City Commission meetings are held on the 2nd and 4th Mondays of each month in the First Floor Conference Room of the City Building, 222 Meigs Street at 5:00 p.m. Please call 419-627-5850 for information on attending the next meeting. The public is always welcome. Find out more about Big Island Water Works on the Internet at [www.ci.sandusky.oh.us](http://www.ci.sandusky.oh.us)

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