

# CITY OF ANN ARBOR 2018 Water Quality Report



## WHAT'S INSIDE:

A Message to Our Customers, page 2  
About This Report, page 3  
Water Quality Data, page 4-5

Contaminants of Concern, page 6-7  
Abbreviations & Definitions, page 7  
Kids' Activities, page 8



# A MESSAGE TO OUR CUSTOMERS

## Summarizing 2018 Water Quality Test Results Protecting Safe Drinking Water: Keeping Our Customers Informed

### To Our Customers:

Each day, the City of Ann Arbor's water treatment staff prioritize maintaining the safety of your drinking water. In 2018, a team of 30 water treatment professionals collected more than 58,000 water samples and conducted over 177,000 tests to help ensure that high quality water reaches all City of Ann Arbor customers. So, it is with great pride that I present this 2018 Water Quality Report, which explains where your drinking water comes from, what is in it, and what we are doing to keep it safe.

In 2018, the water treatment team was again recognized for its commitment to excellence. Awarded to the city by the Association of Metropolitan Water Agencies, the Gold Award recognizes our team's commitment and dedication to diligently providing safe drinking water to our more than 125,000 customers. Beginning in 2019, I would like to introduce you to this team through both our website and at our Open House being held May 11, 2019.

As you may know, we continue to face several water quality challenges with emerging contaminants. Dealing with water contaminants is not new for us. Throughout my tenure of almost 22 years, and in the decades preceding, the city has successfully addressed and overcome several water quality challenges. As leaders in the water sector, Ann Arbor remains at the forefront of developing water quality solutions. Perhaps that's why utilities from all over the United States have sought input and direction from us on how to address and solve emerging contaminant issues.

As a testament to our responsiveness to an emerging pathogen, *Cryptosporidium*, we will be adding ultraviolet light disinfection to our treatment process, which is a technology extremely effective at killing *Cryptosporidium* without the use of additional chemicals. Another example is our proactive replacement of carbon in our filters with a product that is more effective at the removal of manufacturing by-products, such as per- and polyfluoroalkyl substances (PFAS).

Over the coming year, we will continue to leverage our partnerships with local organizations, such as the Huron River Watershed Council, to help ensure that our watershed is adequately protected from substances that might impact your drinking water. In addition, the city is lobbying to ensure that Michigan and its environmental regulatory agencies remain focused on protecting our waterways. While emerging contaminants may continue to be detected, be assured our competent staff is prepared to not only face these challenges, but also remain an industry leader and ahead of future regulations.

Thank you for taking the time to review this Water Quality Report. To learn more about your drinking water and the City of Ann Arbor's efforts to protect its safety, contact us via email ([water@a2gov.org](mailto:water@a2gov.org)), telephone (734.794.6426), social media, our Open House on May 11 or through our website ([www.a2gov.org/A2H2O](http://www.a2gov.org/A2H2O)). Please know that however you choose to engage with us, your questions are always welcome and any concerns will be taken seriously. We remain dedicated to providing you with water quality that meets or exceeds State and Federal standards.

Respectfully,

*Brian Steglitz*

Brian Steglitz, PE, Manager of Water Treatment Services

SAVE THE  
DATE:

*Earth Day*

Monday, April 22

*Earth Day Festival*

Leslie Science & Nature Center,  
Sunday, April 28, noon-4 p.m.

*Water Treatment  
Open House*

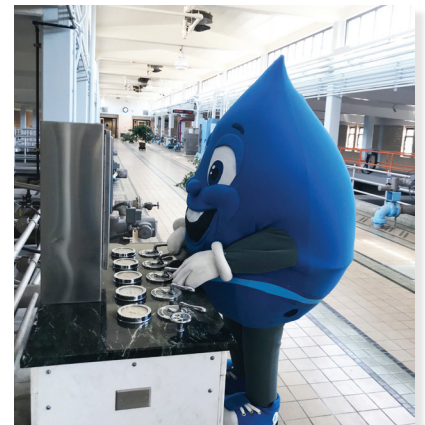
Saturday, May 11, 10 a.m.-2 p.m.

*Huron River Day*

Sunday, May 19, noon-4 p.m.

*Mayor's Green Fair*

Friday, June 14, 6-9 p.m.



# ABOUT THIS REPORT

In the following pages, you will find an overview of the required and voluntary water testing programs that protect our drinking water system. 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. 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 at 800.426.4791.

**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, urban storm water runoff, and residential uses
- 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
- Radioactive contaminants which can be naturally occurring or be the result of oil and gas production and mining activities

The sources of drinking water - both tap and bottled - include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of 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.

**Source Water Assessment Program:**

Federal regulations require states to develop and implement Source Water Assessment Programs (SWAP) to compile information about potential sources of contamination to their source water supplies. This information allows us to better protect our drinking water sources. In 2004 MDEQ performed a Source Water Assessment on the city's system. To obtain a copy of the assessment, request one by calling 734.794.6320.

In 2017, the city completed a Surface Water Intake Protection Plan (SWIPP). Implementation of this plan continues through system-wide data collection and monitoring, community staff training, contingency planning, public outreach, and vegetation management. If you have further questions about the city's SWIPP, please see the city's website at: [www.a2gov.org/departments/systems-planning/programs/Pages/SWIPP.aspx](http://www.a2gov.org/departments/systems-planning/programs/Pages/SWIPP.aspx)



The City of Ann Arbor's source water is comprised of both surface and ground water sources. About 85% of the water supply comes from the Huron River with the remaining 15% provided by multiple wells. The water from both sources is blended at the Water Treatment Plant.

# WATER QUALITY DATA

The City of Ann Arbor is committed to providing exceptional water quality. We routinely monitor for contaminants in your drinking water according to federal and state standards. Many additional parameters were tested, but not detected, and are not included in this report. This report includes information on all regulated drinking water parameters detected during calendar year 2018. We are required to monitor for certain contaminants less than once per year because the concentration of these contaminants are not expected to vary significantly from year to year.

## Regulated Contaminants Detected | Abbreviations & Definitions on Page 7

Parameter Detected	Your Water Results		Regulatory Requirements		Likely Source
	Highest Level Detected	Results Range	EPA LIMIT	EPA GOAL	
			MCL, TT, or MRDL	MCLG or MRDLG	
<b>Disinfection Byproducts, Disinfectant Residuals, and Disinfection Byproduct Precursors</b>					
Bromate	6.2 ppb <sup>1</sup>	2.1 – 12.0 ppb	10	0	Byproduct of ozone disinfection
Chloramines <sup>3</sup>	2.4 ppm <sup>1</sup>	0.01 – 3.3 ppm	MRDL: 4	MRDLG: 4	Disinfectant added at Water Plant
Haloacetic Acids (HAA5) <sup>3</sup>	6.7 ppb <sup>2</sup>	2.9 – 11.3 ppb	60	N/A	Byproduct of disinfection
Total Organic Carbon (TOC)	57% removed <sup>1</sup>	50 – 64% removed	TT: 25% minimum removal	N/A	Naturally present in the environment
Total Trihalomethanes (TTHM) <sup>3</sup>	3.3 ppb <sup>2</sup>	ND – 5.4 ppb	80	N/A	Byproduct of disinfection
<b>Radiochemical Contaminants (tested in 2014 and 2017, due to be tested in 2020)</b>					
Gross Alpha	0.817 ± 1.35 pCi/L	N/A	15	0	Erosion of natural deposits
Radium 226 and 228	1.39 ± 0.91 pCi/L	N/A	5	0	Erosion of natural deposits
<b>Inorganic Contaminants</b>					
Arsenic	3.4 ppb	N/A	10	0	Erosion of natural deposits
Barium	90 ppb	N/A	2000	2000	Erosion of natural deposits
Chromium (total)	<6.0 ppb	N/A	100	100	Discharge from steel and pulp mills; erosion of natural deposits
Fluoride	0.78 ppm	0.51 – 0.78 ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth
Nitrate	0.7 ppm	0.3 – 0.7 ppm	10	10	Runoff from fertilizer use; leaching from septic tanks and sewage
Nitrite	0.04 ppm	ND – 0.04 ppm	1	1	Runoff from fertilizer use; leaching from septic tanks and sewage
<b>Microbiological Contaminants</b>					
Total Coliform <sup>3</sup>	1 positive out of 138 tested in Jan.	0 – 0.7%	TT: ≤ 5% positive per month	N/A	Naturally present in the environment
Turbidity	0.20 NTU	100% of samples ≤ 0.3 NTU	1 NTU and 95% of samples ≤ 0.3 NTU	N/A	Naturally present in the environment
<b>2017 Lead and Copper Results from Customer Faucets <sup>4</sup></b>					
Copper <sup>5</sup>	100 ppb (90% of samples ≤ this level)	0 out of 62 (number of sites above action level)	1300	1300	Corrosion of household plumbing
Lead <sup>5</sup>	3 ppb (90% of samples ≤ this level)	0 out of 62 (number of sites above action level)	15	0	Corrosion of household plumbing

<sup>1</sup> highest running annual average

<sup>2</sup> highest locational running annual average

<sup>3</sup> measured in the distribution system

<sup>4</sup> Every three years the City of Ann Arbor is required to sample 50 homes throughout the distribution system to test for lead and copper. We will be conducting this testing again in 2020.

<sup>5</sup> Lead and Copper are regulated by action levels

# WATER QUALITY DATA

## 2018 Special Monitoring

Parameter Detected (units)	Your Water Results		Likely Source
	Average level detected	Range	
1,4-Dioxane (ppb)	<0.10	N/A	Groundwater contamination from manufacturing process and landfills
N-Nitrosodimethylamine (NDMA) (ppb)	<0.48	N/A	Byproduct of disinfection
Perchlorate (ppb)	<0.11	N/A	Nitrate fertilizer runoff; contamination from industrial manufacturing process
Sodium (ppm)	69	49 – 89	Erosion of natural deposits; road salt and water softeners
Perfluorooctanesulfonic Acid (PFOS) (ppt) <sup>1</sup>	5.9	ND – 22.0	Used in metal plating and in products such as Teflon, Scotch Guard, Stain Master, and firefighting foam
Perfluorooctanoic Acid (PFOA) (ppt) <sup>1</sup>	0.1	ND – 2.0	Used in metal plating and in products such as Teflon, Scotch Guard, Stain Master, and firefighting foam
Total PFAS-(21 compounds) (ppt)	31.4	ND – 88.1	Used in metal plating and in products such as Teflon, Scotch Guard, Stain Master, and firefighting foam

<sup>1</sup> EPA health advisory level for PFOS and PFOA combined is 70 ppt

## Other Water Quality Parameters of Interest

Parameter Detected (units)	Your Water Results	
	Average level detected	Range
Alkalinity, total (ppm as CaCO <sub>3</sub> )	63	34 – 125
Aluminum (ppm)	0.019	N/A
Ammonia as N (ppm)	<0.10	<0.10 – 0.15
Arsenic (ppb)	3.4	N/A
Calcium (ppm)	32	20 – 50
Chloride (ppm)	124	98 – 164
Conductivity (µmhos/cm)	646	502 – 782
Hardness (CaCO <sub>3</sub> ) (ppm)	135	96 – 196
Hardness (CaCO <sub>3</sub> ) (gpg)	7.9	5.6 – 11.5
Iron (ppm)	<0.1	N/A
Lead (ppb) (at Water Treatment Plant tap)	<1.0	N/A

Parameter Detected (units)	Your Water Results	
	Average level detected	Range
Magnesium (ppm)	14	9 – 22
Manganese (ppb)	140	N/A
Mercury (ppb)	<0.20	N/A
Non-Carbonate Hardness (ppm)	72	26 – 131
pH (S.U.)	9.3	9.0 – 9.5
Phosphorus, total (ppm)	0.25	0.04 – 0.54
Potassium (ppm)	2.7	N/A
Sulfate (ppm)	55	42 – 78
Temperature (° Celsius)	15.3	5.9 – 25.3
Total solids (ppm)	374	279 – 409
Zinc (ppb)	<50	N/A
Nitrite in distribution system (ppm)	0.038	0.023 – 0.230



## DO I NEED TO TAKE ANY 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 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 microbial contaminants are available from the Safe Drinking Water Hotline at: 800.426.4791.

# CONTAMINANTS OF CONCERN

## PFAS

Per- and polyfluoroalkyl substances (PFAS), are a group of chemicals that have been classified by the EPA as an emerging contaminant. PFAS have been around since the 1950s, but we didn't know much about their effects until the early 2000s, when scientists began releasing data on PFAS health impacts and their persistence in the environment. 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 widely used today. PFAS have been found at low levels both in the environment and in blood samples of the general U.S. population. PFAS 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.

Samples collected by the city and analyzed by an independent lab each month have shown PFAS in Ann Arbor drinking water at levels significantly below the Health Advisory Level established by EPA and adopted by the State of Michigan. The city continues to monitor for PFAS compounds and remains committed to providing safe drinking water that complies with or exceeds all regulatory guidelines.

Currently, granular activated carbon (GAC) filtration is the best available technology for removing PFAS in drinking water. The city has GAC filters, and has been piloting a new type of carbon in several of its filters since November 2017. Due to the success of this pilot, in September 2018 City Council approved a proposal to replace all of the older carbon in the city's filters with the new type of carbon in fiscal year 2019. After this project is completed, the city anticipates that concentrations of PFOS and PFOA will be reliably less than 10 ppt, a target more restrictive than the most stringent water quality levels established in the U.S. or around the world. Additional information and PFAS results are posted to the website: [www.a2gov.org/PFAS](http://www.a2gov.org/PFAS).

## 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. The City of Ann Arbor is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components.

In 2017, Michigan enacted a revised Lead and Copper Rule. To meet these new requirements, the city is developing a service line materials inventory that will be finalized in January 2020. Additional information will be published on the city's website as it is available. 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 via the USEPA website (<http://water.epa.gov/drink/info/lead/index.cfm>).

## 1,4-DIOXANE

Gelman Sciences (now Pall Corp., a division of Danaher Corp.) polluted groundwater in parts of Washtenaw County, including parts of the city as well as Ann Arbor and Scio Townships, when it improperly disposed of industrial solvents containing 1,4-dioxane between 1966 and 1986. That pollution has since spread through the aquifer. The city is engaged with neighboring communities and the state to, among other things, push Gelman to delineate, contain and clean up its pollution. To that end, the city has, for example, intervened in litigation in Washtenaw County Circuit Court brought by the state against Gelman.

In 2018, there were no detections of 1,4-dioxane in city drinking water. While this is our 2018 Water Quality report, we want to keep our customers up-to-date with the most recent information. In February 2019, we detected 1,4-dioxane in the drinking water at 0.030 ppb, a concentration much lower than any EPA risk levels. No 1,4-dioxane was detected in samples collected in March 2019. Additional information and analytical test results are posted on our website: [www.A2gov.org/A2H2O](http://www.A2gov.org/A2H2O).



# CONTAMINANTS OF CONCERN

## CRYPTOSPORIDIUM

Cryptosporidium is a microbial pathogen found in surface water throughout the United States. Although filtration removes Cryptosporidium, the most commonly used filtration methods cannot guarantee 100% removal. Our testing indicates the presence of these organisms in our source water, but not in the finished water. Current test methods do not allow us to determine if the detected organisms are capable of causing disease or if they are dead. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Most healthy individuals can overcome the disease within a few weeks. Cryptosporidium must be ingested to cause disease and it may be spread through means other than drinking water.

To respond to recent increases in concentrations of Cryptosporidium in the Huron River, the city is adding ultraviolet light (UV) disinfection to the water treatment process. It is anticipated that this new treatment technology will be operational by June 2020.

## ABBREVIATIONS/DEFINITIONS & MORE INFORMATION

### ABBREVIATIONS & DEFINITIONS:

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

**CaCO<sub>3</sub>:** Calcium carbonate

**Gpg-Grains per Gallon:** A unit of water hardness defined as 1 grain (64.8 milligrams) of calcium carbonate dissolved in one gallon of water.

**MCL-Maximum Contaminant Level:** The level of a contaminant that is allowed in drinking water. They are set as close to the MCLGs as feasible.

**MCLG-Maximum Contaminant Level Goal:** The level of a contaminant in drinking water below which there is no known or expected risk to health.

**MRDL-Maximum Residual Disinfectant Level:** The highest level of a disinfectant allowed in drinking water.

**MRDLG-Maximum Residual Disinfectant Level Goal:** The level of a drinking water disinfectant below which there is no known or expected risk to health.

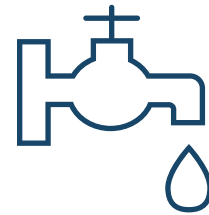
**ND:** Not Detected

**NTU-Nephelometric Turbidity Units:** A measure of cloudiness in the water

**pCi/L:** picocuries per liter | **ppm:** parts per million | **ppb:** parts per billion

**ppt:** parts per trillion | **S.U.:** Standard Units

**TT-Treatment Technique:** A required process intended to reduce the level of a contaminant in drinking water



### DID YOU KNOW?

The Water Treatment Plant runs **24/7/365!** We process about **5 BILLION GALLONS** of water annually and serve over **125,000** people clean drinking water each day.

We also maintain about **500 MILES** of water distribution pipes!

Printed copies of this report are available. Please share this report with all people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand and mail.

To receive a printed copy of this report please call 734.794.6320.

# KIDS' ACTIVITIES

## *Water Word Scramble*

Put the letters in the right order to complete the sentences!

All living things need \_\_\_\_\_ to live. When water evaporates, it travels into the air and  
\_\_\_\_\_ becomes part of a \_\_\_\_\_. Less than 1% of water on earth is \_\_\_\_\_ water.  
tawer  
dlocu sefrh

We \_\_\_\_\_ water in the liquid form. Check for leaks and save hundreds of  
\_\_\_\_\_ of water a day. You'll save water by taking a quick \_\_\_\_\_.  
ikrdn  
allogns howser

Wash bikes and cars with a \_\_\_\_\_ and sponge instead of running a hose.  
kecbut

Ask your \_\_\_\_\_ to look for ways to save water.  
mfaiyl

## *Water Cycle Activity & Experiment*

With this fun activity, you (and your children) can watch the water cycle in action.

**You will need:** a jar, plants, bottle cap/shell of water/soil and sand.

**Directions:** Fill a jar (see picture) and put the lid on. Put the jar in a sunny place and see how the water cycle works.

