



## 2015 ANNUAL CITY OF ANN ARBOR

# water

## QUALITY REPORT



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**Water Plant 1938**

## Dear Valued Customer:

The City of Ann Arbor Water Treatment Services Unit is pleased to share with you our annual drinking water quality report, which is a requirement of the Safe Drinking Water Act (SDWA).

This report will tell you where your drinking water comes from, what's in it, and how to keep our water supply safe.

In the wake of the water crisis in Flint, it is understandable that our customers are concerned about their own water quality. We have a qualified staff of water utility professionals who understand the importance that the water supply plays in the overall quality of life for our community. We are dedicated to providing our customers with the best quality drinking water possible and we continue to meet or exceed all State and Federal regulatory requirements.

Twenty-five years ago, the City began removing the only lead components remaining in our system. These components, called "goosenecks" were used before 1950 to connect the iron water main and the galvanized iron service lines. Today there are about 100 goosenecks remaining, and the City is committed to removing them. In the meantime, these connections are covered by a protective layer of scale that prevents lead from entering the drinking water. On pages 6-7 of this report you will find a summary of the City's lead testing data and some additional facts and information about healthy plumbing.

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*We work hard to provide you with safe, reliable, cost-effective drinking water and outstanding customer service*

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The most recent data from Ann Arbor homes indicates that the lead level in our drinking water is well below the established action levels.

We work hard to provide you with safe, reliable, cost-effective drinking water and outstanding customer service, and we are committed to constantly improving our services and operations. Continuing to reinvest in our infrastructure is one important component of our efforts to meet your service expectations. A significant portion of the City's Water Treatment Plant dates back to 1938 and is still in service. As we begin to plan for its replacement, the City will need to adjust its drinking water rates to ensure it is in position to finance this reinvestment.

**This reinvestment helps to ensure a reliable water system today and for future generations.**

If you have questions about this report, or drinking water quality in the City of Ann Arbor, please contact us at (734) 794-6426 or visit us on the web at [www.a2gov.org/departments/water-treatment](http://www.a2gov.org/departments/water-treatment).

Sincerely,

Brian Steglitz, PE

Manager of Water Treatment Services



### Did you know...

Storm drains lead directly to the river, without treatment?

Dumping waste into storm drains, ditches, or waterways contaminates drinking water supplies, recreational areas, and wildlife habitats. Plus, it is illegal!

### We need your help!

Report any dumping, spills, or construction site runoff into the stormwater system to City officials.

## Sources of 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:

- **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 stormwater 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 stormwater 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 stormwater runoff, and septic systems.
- **Radioactive contaminants**, which can be naturally-occurring or be the result of oil and gas production and mining activities.

## Protecting Water Quality

### Source Water Assessment Program

All sources of drinking water may be susceptible to contamination. Federal regulations require states to develop and implement Source Water Assessment Programs (SWAP) to compile information about any potential sources of contamination to their source water supplies. This information allows us to better protect our drinking water sources. In 2004, the MDEQ performed a Source Water Assessment on our system. To obtain a copy of the assessment, request one by calling (734) 794-6426.

Using the information from the assessment, a susceptibility rating for each water source was determined by considering the number and location of all potential sources of contamination to our source water. The Huron River was rated "high" and the wells were rated "moderate". These ratings do not mean that source water contamination has or will occur in our water supply; rather, they indicate a need for us to continue to carefully monitor and protect our drinking water sources.



### Where does my water come from?

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.

## Are you at risk?

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 *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.



## Cryptosporidium

*Cryptosporidium* is a microbial pathogen found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly-used filtration methods cannot guarantee 100 percent removal. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water. Our monitoring indicates the presence of these organisms in our source water, but not in the finished water.

### TERMS USED IN THIS REPORT

- **Action Level (AL):** The concentration of a contaminant, which, if exceeded, triggers treatment, or other requirements, which a water system must follow.
- **Grains per Gallon (gpg):** A unit of water hardness defined as 1 grain (64.8 milligrams) of calcium carbonate dissolved in 1 US gallon of water (3.785 L). This is a term often used by appliance manufacturers.
- **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 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 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
- **Not Detected (ND):** Not detected at or above the minimum reporting level - laboratory analysis indicates that the constituent is not present.
- **Nephelometric Turbidity Units (NTU):** Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.
- **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.
- **1 part per million (ppm) or milligrams per liter (mg/L):** corresponds to one minute in two years or a single penny in \$10,000. 1 ppm = 1000 ppb
- **1 part per billion (ppb) or micrograms per liter (µg/L):** corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.





# Now It Comes With A List of Ingredients!

During the past year, we have taken thousands of water samples. This report includes information on all regulated drinking water parameters detected during calendar year 2015. Many more parameters were tested, but not detected, and are not included in this report.

## REGULATED CONTAMINANTS THAT WERE DETECTED

Parameter Detected	Your Water Results		Regulatory Requirements		Likely Source
	Highest Level Detected	Results Range	EPA LIMIT MCL, TT, or MRDL	EPA GOAL MCLG or MRDLG	
<b>Disinfection Byproducts, Disinfectant Residuals, and Disinfection Byproduct Precursors</b>					
Bromate	6.8 ppb <sup>1</sup>	2.9 – 14.0 ppb	10	0	Byproduct of ozone disinfection
Chloramines <sup>3</sup>	2.4 ppm <sup>1</sup>	0.03 – 3.5 ppm	MRDL: 4	MRDLG: 4	Disinfectant added at Water Plant
Haloacetic Acids (HAA5) <sup>3</sup>	5.5 ppb <sup>2</sup>	1.7 – 11.0 ppb	60	N/A	Byproduct of disinfection
Total Organic Carbon (TOC)	54% removed <sup>1</sup>	47 – 64% removed	TT: 25% minimum removal	N/A	Naturally present in the environment
Total Trihalomethanes (TTHM) <sup>3</sup>	3.6 ppb <sup>2</sup>	ND – 6.4 ppb	80	N/A	Byproduct of disinfection
<b>Radioactive Contaminants (tested in 2014)</b>					
Radium 226 and 228	2.21 ±0.87 pCi/L	N/A	5	0	Erosion of natural deposits
<b>Inorganic Contaminants</b>					
Barium	10 ppb	N/A	2000	2000	Erosion of natural deposits
Chromium (total)	ND	N/A	100	100	Discharge from steel and pulp mills; erosion of natural deposits
Fluoride	0.85 ppm	0.58 – 0.85 ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth
Nitrate	0.8 ppm	0.5 – 0.8 ppm	10	10	Runoff from fertilizer use; leaching from septic tanks and sewage
<b>Microbiological Contaminants</b>					
Total Coliform <sup>3</sup>	0.7% in Oct out of 137 tested	0 – 0.7%	≤ 5% positive per month	0 positive	Naturally present in the environment
Turbidity	0.16 NTU	100% of samples ≤0.3 NTU	1 NTU and 95% of samples ≤0.3 NTU	N/A	Naturally present in the environment

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

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

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

## Contaminants in Water

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.





# Is There Lead in My Water?

Water that comes out of the City's drinking water plant has no detectable lead, however, test results from homes in our community show there can be low levels of lead and copper in tap water, primarily caused by corrosion of household pipes, solder, and faucets.

The City adjusts the chemistry of the water leaving the plant to minimize the amount of corrosion that can occur, thus helping to reduce the risk to you!



## 2014 LEAD AND COPPER RESULTS

Parameter Detected	Units	Your Water Results		Regulatory Requirements		Likely Source
		Concentration at 90 <sup>th</sup> Percentile	Number of sites above Action Level	Action Level	MCLG	
Lead	ppb	2	0 out of 52	15	0	Corrosion of household plumbing
Copper	ppb	70	0 out of 52	1300	1300	Corrosion of household plumbing

## 2015 SPECIAL MONITORING

Parameter Detected	Units	Your Water Results		Likely Source
		Average level detected	Range	
1,4-dioxane	ppb	ND	N/A	Groundwater contamination from manufacturing process and landfills
N-Nitrosodimethylamine (NDMA)	ppb	0.0029	N/A	Byproduct of disinfection
Perchlorate	ppb	0.09	N/A	Nitrate fertilizer runoff; contamination from industrial manufacturing process
Sodium	ppm	60	48 – 67	Erosion of natural deposits; road salt and water softeners

## OTHER WATER QUALITY PARAMETERS OF INTEREST

Parameter Detected	Units	Your Water Results		Parameter Detected	Units	Your Water Results	
		Average level detected	Range			Average level detected	Range
Alkalinity, total	ppm as CaCO <sub>3</sub>	51	30 – 94	Manganese	ppb	ND	N/A
Aluminum	ppm	0.022	N/A	Mercury	ppb	ND	N/A
Ammonia as N	ppm	0.13	ND – 0.30	Nitrite as N	ppm	0.02	ND – 0.06
Arsenic	ppb	ND	N/A	Non-Carbonate Hardness	ppm	80	44 – 123
Calcium	ppm	32	23 – 66	pH	S.U.	9.3	9.0 – 9.4
Chloride	ppm	115	98 – 147	Phosphorus, total	ppm	0.24	0.08 – 0.40
Conductivity	µmhos/cm	607	497 – 737	Potassium	ppm	3.4	N/A
Hardness (calcium carbonate)	ppm	132	100 – 176	Sodium	ppm	60	48 – 67
	gpg	7.7	5.8 – 10.3	Sulfate	ppm	58	41 – 82
Iron	ppm	ND	N/A	Temperature	°C	14.9	6.3 – 24.9
Lead	ppb	ND	N/A	Total solids	ppm	369	321 – 447
Magnesium	ppm	24	10 – 33	Zinc	ppb	ND	N/A

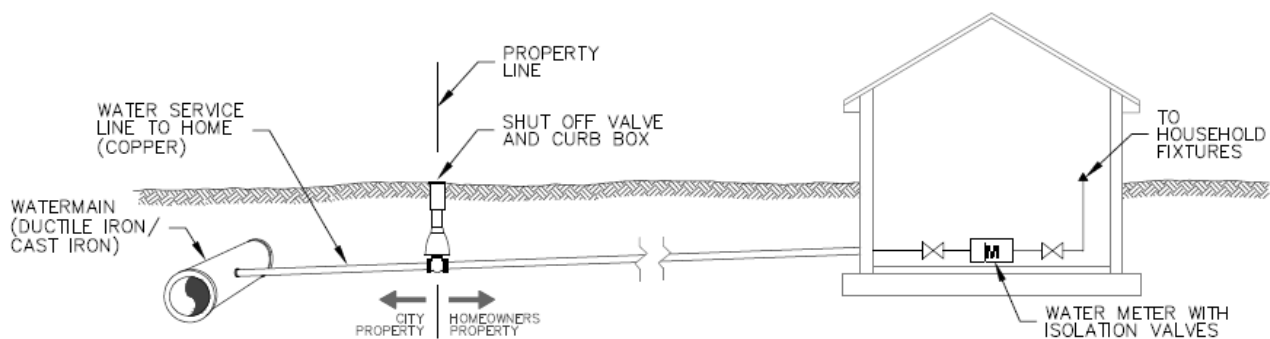
## Lead Awareness in Our Community

There has been a lot of recent news coverage about lead in the Flint drinking water system. To address any local concerns, we would like to provide some information that helps to clarify how the Ann Arbor drinking water system is different.

The unfortunate situation in Flint was caused, in part, when they switched their drinking water supply source, did not use any corrosion control, and lowered the pH of the water. This caused the lead pipes and fittings in their water system to lose their protective coating and then corrode, releasing lead and iron into the water. Our water supply has been softened since 1938 and this process has optimized corrosion control. By controlling the corrosivity of the water, the amount of lead in your drinking water is kept to a minimum.

A diagram has been included below to illustrate a typical residential service line installation.

### Typical Residential Service Line Installation



## Healthy Household Plumbing

### What you can do to minimize lead in your home:

- **Flush your pipes before drinking.** Anytime the water in a faucet has not been used for six hours or longer, flush your cold-water pipes by running the water until it becomes noticeably cold.
- **Do not cook with or drink water from the hot water tap.** Hot water can dissolve lead more quickly than cold water. If you need hot water, draw water from the cold tap and heat it on the stove or in the microwave.
- **Remove and clean your faucet screen and aerator.** Rinse out any debris then reattach them. Doing this once a month will reduce the possibility that small particles that may contain lead will build up in your faucet.
- **Consider replacing lead-containing plumbing fixtures.** A new law came into effect in 2014 limiting the amount of lead in brass faucets and plumbing.

### Important 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. The City of Ann Arbor 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://water.epa.gov/drink/info/index.cfm>.



# Water Quality Word Search



r d r r g l x h c n m t x b f k j d j d  
 e s m e a n f p y s v u a t s r m q o p  
 t r m g d m i f l u o r i d e u y n g k  
 a s a u d n q r u u t s h d i m t l i f  
 w w c l t e i t o o m y u m o f i c t h  
 e j j a c c q b n t t b o b l s d p x t  
 c k k t l y i p q i i r i u f n i p t p  
 a e v i m a o r l j h n s n h i b m p u  
 f o v o z n p a t c p h o o g t r b h h  
 r g d n d q u t k e m m n m f r u v e t  
 u w r s d q o b x e m g w l a a t i r a  
 s l x o r m u i d i r o p s o t p y r c  
 m g l e u m u i r a b f l i i e r m i c  
 j k t e w n c d i s i n f e c t a n t v  
 f a w m a a d t e c y l f j h b n t q r  
 w z w k t d e w t q d h f f w p w l v e  
 d y v i c s l c a m b w d s n k e b k p  
 i t o b n u g y v t p u u f o z o n e p  
 d n l u a x z g b r e v i r n o r u h o  
 s t s o g y w k q h g r c a w t e p e c



barium  
 barton pond  
 chromium  
 copper  
 cryptosporidium  
 disinfectant  
 don't flush medications  
 fluoride  
 groundwater  
 huron river  
 intake  
 lead

monitoring  
 nephelometric  
 nitrate  
 ozone  
 plumbing  
 ppb  
 ppm  
 regulations  
 sodium  
 sunset  
 surface water  
 turbidity  
 water quality

