

CITY OF CHICAGO • 2016

WATER QUALITY REPORT



City of Chicago
Rahm Emanuel
Mayor



PLEASE VISIT OUR WEBSITE FOR MORE INFORMATION

www.cityofchicago.org/watermanagement

WATER IN THE STREET OR BASEMENT

Call 311

WATER QUALITY QUESTIONS

(312) 744-8190

DEPARTMENT OF FINANCE

WATER BILL QUESTIONS

(312) 744-4H2O

TTY (312) 744-2968

E-MAIL AND INTERNET

E-mail: water@cityofchicago.org

www.cityofchicago.org/watermanagement

IEPA'S REGIONAL OFFICES (ILLINOIS)

(847) 608-3131

EPA'S SAFE DRINKING WATER HOTLINE

(800) 426-4791

EPA'S WATER RESOURCE CENTER

(800) 832-7828

EPA'S GENERAL INFORMATION LINE

(312) 353-2000

TTY (312) 886-4658

**If you have any questions about this report
please contact Alan Stark at:**

(312) 742-7499

CITY OF CHICAGO, DEPARTMENT OF WATER MANAGEMENT (DWM) SOURCE WATER ASSESSMENT SUMMARY FOR THE 2016 CONSUMER CONFIDENCE REPORT (CCR)

This year, as in years past, your tap water met all USEPA and state drinking water health standards. Our system vigilantly safeguards its source water supply. This report summarizes the quality of water that we provided last year, including details about where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. We are committed to providing you with this information because informed customers are our best allies.

SOURCE WATER ASSESSMENT SUMMARY

The Illinois EPA implemented a Source Water Assessment Program (SWAP) to assist with watershed protection of public drinking water supplies. The SWAP inventories potential sources of contamination and determined the susceptibility of the source water to contamination. The Illinois EPA has completed the Source Water Assessment Program for our supply.

SOURCE WATER LOCATION

The City of Chicago utilizes Lake Michigan as its source water via two water treatment plants. The Jardine Water Purification Plant serves the northern areas of the City and suburbs, while the Sawyer Water Purification Plant serves the southern areas of the City and suburbs. Lake Michigan is the only Great Lake that is entirely contained within the United States. It borders Illinois, Indiana, Michigan, and Wisconsin, and is the second largest Great Lake by volume with 1,180 cubic miles of water and third largest by area.

SUSCEPTIBILITY TO CONTAMINATION

The Illinois EPA considers all surface water sources of community water supply to be susceptible to potential pollution problems. The very nature of surface water allows contaminants to migrate into the intake with no protection, only dilution. This is the reason for mandatory treatment of all surface water supplies in Illinois. Chicago's offshore intakes are located at a distance, that shoreline impacts are not usually considered a factor on water quality. At certain times of the year, however, the potential for contamination exists due to wet-weather flows and river reversals. In addition, the placement of the crib structures may serve to attract waterfowl, gulls and terns that frequent the Great Lakes area, thereby concentrating fecal deposits at the intake and thus compromising the source water quality. Conversely, the shore intakes are highly susceptible to storm water runoff, marinas and shoreline point sources due to the influx of groundwater to the lake.

Further information on our community water supply's Source Water Assessment Program is available by calling the City of Chicago, Department of Water Management at 312-742-7499 or by going online at <http://dataservices.epa.illinois.gov/swap/factsheet.aspx>

DETECTED CONTAMINANTS

Contaminant (unit of measure) Typical Source of Contaminant	MCLG	MCL	Highest Level Detected	Range of Detections	Violation	Date of Sample
MICROBIAL CONTAMINANTS						
TOTAL COLIFORM BACTERIA (% pos/mo) Naturally present in the environment	0	5%	0.9%	N/A	-	-
FECAL COLIFORM AND E. COLI (# pos/mo) Human and animal fecal waste.	0	0	0	N/A	-	-
TURBIDITY (NTU/Lowest Monthly %≤0.3 NTU) Soil runoff.	N/A	TT (Limit: 95%≤0.3NTU)	100% (Lowest Monthly %)	100% – 100%	-	-
TURBIDITY (NTU/Highest Single Measurement) Soil runoff	N/A	TT (Limit: 1 NTU max)	0.16	N/A	-	-
INORGANIC CONTAMINANTS						
BARIUM (ppm) Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits	2	2	0.0206	0.0196 - 0.0206	-	-
COPPER (ppm) Corrosion of household plumbing systems; Erosion of natural deposits; leaching from wood preservatives.	1.3	AL = 1.3	0.0782 (90 th percentile)	0 sites exceeding AL	-	6/1/2015-9/30/2015
LEAD (ppb) Corrosion of household plumbing systems; Erosion of natural deposits.	0	AL = 15	9.1 (90 th percentile)	3 sites exceeding AL	-	6/1/2015-9/30/2015
NITRATE (AS NITROGEN) (ppm) Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.	10	10	0.46	0.40 - 0.46	-	-
TOTAL NITRATE & NITRITE (AS NITROGEN) (ppm) Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.	10	10	0.46	0.40 - 0.46	-	-
DISINFECTANT\DISINFECTION BY-PRODUCTS						
TTHMs [TOTAL TRIHALOMETHANES] (ppb) By-product of drinking water disinfection.	N/A	80	25.7*	10.1-45.4	-	-
HAA5 [HALOACETIC ACIDS] (ppb) By-product of drinking water disinfection.	N/A	60	14.0*	2.5-25.9	-	-
CHLORINE (as Cl ₂) (ppm) Water additive used to control microbes.	4.0	4.0	1	1 - 1	-	-
TOC [TOTAL ORGANIC CARBON] The percentage of Total Organic Carbon (TOC) removal was measured each month and the system met all TOC removal requirements set by the IEPA.						
UNREGULATED CONTAMINANTS						
SULFATE (ppm) Erosion of naturally occurring deposits.	N/A	N/A	25.7	25.0-25.7	-	-
SODIUM (ppm) Erosion of naturally occurring deposits; Used in water softener regeneration.	N/A	N/A	8.92	8.49-8.92	-	-
STATE REGULATED CONTAMINANTS						
FLUORIDE (ppm) Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories	4	4	0.78	0.62-0.78	-	-
RADIOACTIVE CONTAMINANTS						
COMBINED RADIUM (226/228) (pCi/L) Decay of natural and man-made deposits.	0	5	0.84**	0.5-0.84	-	2/11/2014
GROSS ALPHA excluding radon and uranium (pCi/L) Erosion of natural deposits.	0	15	6.6**	6.1-6.6	-	2/11/2014

Note: TTHM, HAA5, and Chlorine are for the Chicago Distribution System.

*Data expressed as LRAA – Locational Running Annual Average (See Definition of terms for Details)

**The state requires us to monitor for certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, is more than one year old. Some contaminants are sampled less frequently than once a year; as a result, not all contaminants were sampled for during the CCR calendar year. If any of these contaminants were detected the last time they were sampled for, they are included in the table along with the date that the detection occurred. Compliance monitoring for lead and copper is conducted every 3 years. Radiochemical contaminant monitoring is conducted every 6 years

EDUCATIONAL STATEMENTS REGARDING COMMONLY FOUND DRINKING WATER CONTAMINANTS

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 USEPA's Safe Drinking Water Hotline (1-800-426-4791).

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 for their health care providers. USEPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the USEPA's Safe Drinking Water Hotline (1-800-426-4791).

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 can dissolve naturally occurring minerals and radioactive materials, and pick up substances resulting from the presence of animals or human activity.

Possible contaminants consist of:

- 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 may 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 may also come from gas stations, urban storm water runoff and septic systems; and
- Radioactive contaminants, which may 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 that 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.

WATER QUALITY DATA TABLE FOOTNOTES

TURBIDITY: Turbidity is a measure of the cloudiness of the water caused by suspended particles. We monitor it because it is a good indicator of water quality and the effectiveness of our filtration system and disinfectants.

UNREGULATED CONTAMINANTS: A maximum contaminant level (MCL) for this contaminant has not been established by either state or federal regulations, nor has mandatory health effects language been set. The purpose of unregulated contaminant monitoring is to assist USEPA in determining the occurrence of unregulated contaminants in drinking water, and whether future regulation is warranted.

FLUORIDE: Fluoride is added to the water supply to help promote strong teeth. The IL Department of Public Health has recommended an optimal fluoride level of 0.7 mg/L, with a range of 0.6 mg/L to 0.8 mg/L.

SODIUM: There is not a state or federal MCL for sodium. Monitoring is required to provide information to consumers and health officials who are concerned about sodium intake due to dietary precau-

tions. If you are on a sodium-restricted diet, you should consult a physician about the level of sodium in the water.

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 lead service lines and home plumbing. The Department of Water Management, City of Chicago, 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 over six hours, you can minimize the potential for lead exposure by flushing your tap for a minimum of 5 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 by calling 311 or going to www.chicagowaterquality.org. 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>.

Unit of Measurement

ppm: Parts per million, or milligrams per liter (mg/L)

ppb: Parts per billion, or micrograms per liter (µg/L)

NTU: Nephelometric Turbidity Unit, used to measure cloudiness in drinking water

%≤0.3 NTU: Percent samples less than or equal to 0.3 NTU

pCi/L: Picocuries per liter, used to measure radioactivity

DEFINITION OF TERMS

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 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 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.

Maximum Residual Disinfectant Level (MRDL): The highest level of a drinking water disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Highest Level Detected: This column represents the highest single sample reading of a contaminant of all the samples collected in this calendar year.

Range of Detections: This column represents a range of individual sample results, from lowest to highest that were collected during the CCR calendar year.

Date of Sample: If a date appears in this column, the Illinois EPA requires monitoring for this contaminant less than once per year because the concentrations do not frequently change. If no date appears in the column, monitoring for this contaminant was conducted during the Consumer Confidence Report calendar year.

Action Level (AL): The concentration of a contaminant that triggers treatment or other required actions by the water supply.

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

ND: Not detectable at testing limits. **N/A:** Not applicable.

Locational Running Annual Average (LRAA): The average of 4 consecutive quarterly results at each monitored sample location. The LRAA should not exceed 80µg/L for TTHM and 60 µg/L for HAA5.

2016 VOLUNTARY MONITORING

The City of Chicago has continued monitoring for Cryptosporidium, Giardia and E. coli in its source water as part of its water quality program. To date, Cryptosporidium has not been detected in these samples, but Giardia was detected in 2010 in one raw lake water sample collected in September 2010. Treatment processes have been optimized to provide effective barriers for removal of Cryptosporidium oocysts and Giardia cysts in the source water, effectively removing these organisms in the treatment process. By maintaining low turbidity through the removal of particles from the water, the possibility of Cryptosporidium and Giardia organisms getting into the drinking water system is greatly reduced. Also, in compliance with the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) Round 2, the City of Chicago has continued the 24 months long monitoring program that was started in April 2015, collecting samples from its source

water once per month to monitor for Cryptosporidium, Giardia, E. coli and turbidity, with no detections for Cryptosporidium and Giardia reported so far.

In 2016, CDWM has also continued monitoring for hexavalent chromium, also known as chromium-6. USEPA has not yet established a standard for chromium-6, a contaminant of concern which has both natural and industrial sources. Please address any questions or concerns to DWM's Water Quality Division at 312-742-7499. Data reports on the monitoring program for chromium-6 are posted on the City's website which can be accessed at the following address below:

http://www.cityofchicago.org/city/en/depts/water/supp_info/water_quality_resultsandreports/city_of_chicago_emergincontaminantstudy.html

2016 VIOLATION SUMMARY TABLE

The following table(s) lists all violations that occurred during 2016. We included a brief summary of the actions we took following notification of the violation.

CONTAMINANT OR PROGRAM	VIOLATION TYPE	MONITORING PERIOD START DATE – END DATE	VIOLATION EXPLANATION
Individual Filter Effluent Turbidity Monitoring	Minor Routine Monitoring (ISWTR/LT1)	10/01/2016 – 10/31/2016 11/01/2016 – 11/30/2016	We failed to complete all the required tests of our drinking water for the contaminant and period indicated.
Health Effects (if applicable)	None		
Actions we took:	The Department of Water Management has maintained all its turbidity meters and provided relevant training to its staff. This will ensure continuous filter effluent turbidity monitoring without interruption.		

THIS REPORT IS GOING GREENER

Next year the Department of Water Management will offer a hard copy of this report to you on request. Water Management customers will receive notification in their water bills that will advise customers where on the internet a copy of this report will be available.

Next year, customers will also have the option to receive a hard copy like the one you are holding by calling 311. As in years past you can also obtain copies of this report at any Chicago Library Branch, or at the neighborhood Aldermanic Ward Office.

This Consumer Confidence Report and previous reports are available online at our web site at: <http://www.chicagoccr.org/>

CROSS-CONNECTION CONTROL SURVEY

The City of Chicago Department of Water Management is required by the Illinois Environmental Protection Agency (IEPA) to survey all water services connected to our public drinking water supply. This survey will help us prevent accidental contamination of our drinking water system by determining whether a cross-connection may exist at your home or business. A cross-connection is an unprotected or

improper connection to the public drinking water system that may cause contamination or pollution to enter the system.

Please fill out the survey online at www.chicagoccr.org. Your answers are for the Department of Water Management's use only! Please be assured this survey is not an indication of any problems, but is required by the IEPA. Thank you for your cooperation.

CITY OF CHICAGO, DEPARTMENT OF WATER MANAGEMENT IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

In 2016, the City of Chicago Sawyer Water Purification Plant, formerly known as South Water Purification Plant, experienced two turbidity monitoring violations on one of its individual filters. Turbidity is a measurement of the cloudiness of water caused by suspended particles. We monitor it because it is a good indicator of water quality and the effectiveness of our filtration system and disinfectants.

The first and second violations, affecting the same individual filter, occurred over two days in October and November of 2016, from Oct. 31, 2016 at 10:30 PM to Nov. 1, 2016 at 8:30 PM. The violation started when the light bulb of the turbidimeter for Filter #107 effluent had burned out, triggering the meter into a default setting that retained the last reading. This built-in default setting evaded detection by the plant's alarm system designed to alert the operator of a meter's failure. During the instrument failure, the individual filter remained in service for 22 hours without turbidity monitoring. As a corrective action, the default setting was adjusted on all the online turbidity meters at the two filtration plants in operation, SWPP and Jardine Water Purification Plant. Examination of water quality parameters, including turbidity and chlorine, of finished water during the period in question were found to be within acceptable limits.

Even though there was an interruption in continuous monitoring of the affected filter effluent in accordance with the United States Environmental Protection Agency's (USEPA) regulations, monitoring was manually performed regularly on the combined filter clearwells as well as the finished water leaving the treatment plant via the outlets by our on-duty water chemists. These tests showed that we remained within USEPA guidelines and acceptable limits, and that there was no change in water quality during the turbidity monitoring violations.

The Illinois Department of Environmental Protection Agency has determined that because there were two incidents of an extended interruption in continuous turbidity monitoring for the filter effluent, two monitoring violations occurred, requiring public notification. Based on this notification, there is nothing you need to do at this time. Even though this was not an emergency, as our customers, you have a right to know what happened and what we did to correct it. As a corrective action, the City of Chicago Department of Water Management has adjusted the default setting in all its turbidimeters to allow detection by the plant's alarm system when a meter fails and provided training to its staff to be more vigilant. This will ensure continuous filter effluent turbidity monitoring without interruption.

We routinely monitor your water for turbidity (cloudiness), caused by suspended particles. This tells us whether we are effectively filtering the water supply. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards.

WHAT DOES THIS MEAN?

Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. These symptoms are not caused only by organisms in drinking water. If you experience any of these symptoms and they persist, you may want to seek medical advice.

FOR MORE INFORMATION, PLEASE CONTACT

Alan Stark, Deputy Commissioner for the Bureau of Water Supply
At 312-742-7499

Chicago Department of Water Management
Bureau of Water Supply
1000 East Ohio Street • Chicago, IL 60611
Attn: Alan Stark

Please share this information with all the other 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 or mail.

This notice is being sent to you by: The City of Chicago, Department of Water Management Water System ID# IL0316000



Message from
Mayor Rahm Emanuel



Dear Chicago Water Customer,

I am pleased to join the Department of Water Management in providing you with the City of Chicago's 2016 Water Quality Report.

With this annual report we not only aim to share important information about our drinking water but also take the opportunity to update you on new projects and developments, and explain just what it takes to get that water to you and millions of other residents. From threatened budget cuts to the EPA by the federal government to the release of Hexavalent Chromium by US Steel into Lake Michigan, we will keep working closely with the EPA to ensure our environment and drinking water is protected. Our source water cannot be taken for granted so the Department of Water Management (DWM) continues to monitor the raw Lake water for any health or safety concerns to Chicago's drinking water supply. And I want you to know that Chicago water is clean and safe, and regularly exceeds all standards set by the USEPA, the Illinois EPA and the drinking water industry. The quality of Chicago tap water is monitored at every step of the process, 24 hours a day.

But to continue our city's reputation for high quality, good-tasting water it is imperative that we continue to pursue significant renewal of infrastructure. I am proud the Department of Water Management (DWM) reached its annual goal of installing 15,000 meters for the 2016 year which marked a milestone of more than 100,000 water meters installed since implementing the MeterSave program in 2009. Because of the new water meters, customers have seen an average savings of 50% on their water bills. In addition, DWM remains on pace with water main replacement efforts with 90 more miles of aging water main completed which provide infrastructure renewal, increased water supply, and reliability.

The Department provides this annual Consumer Confidence Report to inform all of our customers about the quality of Chicago tap water. This report is full of useful information that will help you manage your water consumption, improve your efficiency, and protect your family and your neighbors from flooding and other risks. And starting next year, this report is going greener – you will have the option to receive a hard copy like the one you are holding by calling a designated phone number, or by mailing a provided return post card. Also, as in years past you can also obtain copies of this report at any Chicago Library Branch, or at your neighborhood Aldermanic Ward Office. I hope that you look it over carefully.

If you are concerned about the quality of your water please don't hesitate to make a request online at www.chicagowaterquality.org or call 311 to have your water quality checked. We are committed to ensuring that Chicago remains a world-class city built on a world-class foundation.

Sincerely,

A handwritten signature in black ink that reads "Rahm Emanuel". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Rahm Emanuel
Mayor

Este informe contiene información muy importante. a
ó hable con alguien que lo entienda bien.

Do you have a WATER METER?

MeterSave is available to all eligible single family or two-flat non-metered homeowners in Chicago that volunteer to have a FREE water meter installed. With your FREE installation you will receive our 7-year guarantee that your water and sewer bill will not exceed what you would have paid as a non-metered customer, so long as you stay current on your bill. If you move, the guarantee does not transfer to the new owner.

By installing a water meter, you become more aware of your water usage. By making small changes in your everyday water habits, you

can easily save water and money. In addition to the installation of a FREE water meter and the 7-year guarantee, MeterSave participants may choose a FREE outdoor water conservation kit or indoor water conservation kit, while supplies last.

The water meter and installation are FREE!

Please Note: some meter installations may require more than one visit for completion.

EXAMPLE 2-FLAT WATER BILL

BEFORE METERSAVE



AVG. 2016 MONTHLY BILL: \$136.16

(Based on Bi-Annual Assessment)

BASED ON:

- 23' wide building with 2 floors: \$181.08 / 6 months
- 30' hose frontage: \$53.63 / 6 months
- Toilet: \$75.42 / 6 months
- Sink: \$22.93 / 6 months
- Bath Tub: \$75.42 / 6 months
- Residential Sewer: \$408.48 / 6 months
- Assumes unlimited water use

AFTER METERSAVE



AVG. 2016 MONTHLY BILL: \$78.11

(Based on Billing Every 2 Months)

Savings of 43% on bill by installing meter

BASED ON:

- Water: \$3.81 per 1,000 gallons
- Sewer: 100% of water charge

The Department of Water Management
Jardine Water Purification Plant
1000 East Ohio Street
Chicago, Illinois 60611

City of Chicago
Rahm Emanuel, Mayor



PRESORTED
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