

City of Waukegan 2016 Annual Water Quality Report



Welcome to your Annual Water Quality Report covering the period from January 1 through December 31, 2015. Your tap water met all USEPA and state drinking water health standards. We are pleased to report that our system had no violation of a contaminant level or any other water quality standard. This report summarizes important information about where your tap water comes from, how it is treated and what it contains.

***Este informe contiene informacion muy importante.
Traduscalo o hable con alguien que lo entienda bien.***

How is the water purified?

Waukegan draws water from Lake Michigan via an intake that extends into the Lake. The water undergoes various treatment processes before being delivered as finished tap water. Aluminum sulfate and polymer are added to the water to destabilize and increase the density of substances that cause turbidity (cloudiness). The water flows to the settling basins, where it undergoes gentle mixing and where turbidity causing substances are allowed to settle out. Next the water goes through the filters that consist of natural media layers (gravel, sand and anthracite) to remove the remaining particles and bacteria. The water is disinfected with chlorine three times during this process and monitored for turbidity to provide the maximum barrier against bacteria, viruses and other microorganisms. Fluoride is added (as mandated by State law) to reduce tooth decay followed by phosphate to protect the integrity of water mains and house plumbing against corrosion.

Our water is tested for over 100 different contaminants. There were no bacteria found in our finished water. Also, there was no detection of herbicides, insecticides radionuclides, PCB's or discharge contaminants from petroleum, plastics or pharmaceuticals.

What does the water contain?

Our water is tested and monitored onsite every day, 24/7, 365 days a year. In addition to manual testing, we have continuous online monitoring instruments that monitor turbidity and chlorine residuals. Our turbidity instruments monitor the water every 3 seconds. That is over 94 million readings a year for just one water quality parameter. Turbidity is a measurement of cloudiness of water due to suspended particles. It is a good indicator of water quality and the effectiveness of our filtration and disinfection. Chlorine levels are monitored every 2.5 minutes. Our onsite, certified lab together with EPA approved NELAP accredited outside laboratories test for over 100 contaminants in the finished water. We test for bacteria, radioactive compounds, fertilizers, herbicides, insecticides as well as discharges from plastics, petroleum, metals, textile-finishing, pharmaceutical and chemicals factories just to name a few. Despite the concern of PCB's along Waukegan's Harbor, there are no PCB's in our drinking water. If you would like to see all the contaminants that Waukegan tested for during 2015 please go to

http://water.epa.state.il.us/dww/JSP/WaterSystemDetail.jsp?tinwsys_is_number=716978&tinwsys_st_code=IL&wsnumber=IL0971900

Want to know more about Lake Michigan water?

The overall quality of Lake Michigan water has improved substantially since the late 1960's. This is primarily due to IL EPA enforcing stricter regulations regarding direct discharge of municipal and industrial wastes into the Lake. According to the Source Water Assessment Report, our water supply's 6200 ft intake has low susceptibility to shoreline contaminants due to mixing and dilution. The full summary of this report can be found at <http://dataservices.epa.illinois.gov/swap/factsheet.asp>

Table 1 lists regulated contaminants that were found in our finished water for the year 2015. If the contaminant does not appear on the list below it means that it was not detected in our water. We monitor for over 80 regulated contaminants.

| Regulated Contaminants | | | | | | |
|--|---|---|--------------------------------|---------------------------------|-----------|-----------------|
| Contaminant and Source of Contamination | Highest Level Detected (mg/L) <i>(footnote 1)</i> | Range of Levels (mg/L) <i>(footnote 12)</i> | MCL (mg/L) <i>(footnote 2)</i> | MCLG (mg/L) <i>(footnote 3)</i> | Violation | Collection Date |
| Biological Contaminants | | | | | | |
| Total Coliform Bacteria <i>(naturally present in environment, used as an indicator for other bacteria)</i> | 1.11% (1 positive sample) | N/A | 5% | 0 | No | monthly |
| Total Organic Carbon <i>naturally present</i> | 1.56 | 1.3-1.8 | TT <i>(footnote 4)</i> | N/A <i>(footnote 13)</i> | No | monthly |
| Turbidity (NTU) <i>soil runoff (footnote 5, 6)</i> | 0.09 <i>(Highest single measurement)</i> | 0.03 - 0.09 | TT = 1.0 | N/A | No | every 2 hours |
| Turbidity (lowest monthly % limit) <i>soil runoff</i> | 100% | 100% | TT = 0.3 | N/A | No | |
| Inorganic Contaminants | | | | | | |
| Barium <i>discharges of drilling wastes and metal refineries; erosion of natural deposits</i> | 0.019 | single sample | 2 | 2 | No | 1/12/2015 |
| Fluoride <i>water additive to reduce tooth decay</i> | 0.87 | 0.56 - 1.14 | 4 | 4 | No | monthly |
| Nitrate (State regulated – <i>footnote 7</i>) <i>fertilizer, sewage runoff; natural erosion</i> | 0.37 | single sample | 10 | 10 | No | 5/11/2015 |
| Sodium (State regulated) <i>natural erosion</i> | 7.3 | single sample | N/A | N/A | No | 1/12/2015 |
| Arsenic <i>erosion of natural deposits; runoff from orchards, glass and electronics wastes</i> | 0.0013 | single sample | 0.0100 | 0 | No | 1/12/2015 |

Despite arsenic being detected at a low level in the finished water, it still meets USEPA’s arsenic standard. USEPA’s standard balances the current understanding of arsenic’s possible health effects against the costs of removing arsenic from drinking water. USEPA continues to research the health effects of low levels of arsenic, which is both a naturally-occurring and man-made contaminant known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

| | | | | | | |
|---|-----------------|-------------------------------------|--------------------------------|--------------------------------|----|-----------------------------------|
| Lead (distribution system – <i>footnote 8</i>) <i>corrosion of household plumbing and/or service lines</i> | 0.0099 (90th %) | 2 samples exceeding AL (0 - 0.0257) | AL = 0.015 <i>(footnote 9)</i> | 0 | No | every 3 years July-September 2014 |
| Copper (distribution system) <i>corrosion of household plumbing and/or service lines</i> | 0 (90th %) | 0 samples exceeding AL (0 - 0.498) | AL = 1.3 | 1.3 | No | every 3 years July-September 2014 |
| Chlorine <i>disinfectant</i> | 1.58 | 1.10 – 1.89 | 4 (MRDL) <i>(footnote 10)</i> | 4 (MRDLG) <i>(footnote 11)</i> | No | continuously |

| Disinfection By-Products | | | | | | |
|---|-------|---------------|-------|-----|----|-----------|
| Haloacetic Acids (HAA) <i>by-product of water disinfection</i> | 0.013 | 0.006 - 0.023 | 0.060 | N/A | No | quarterly |
| Total Trihalomethanes (TTHM) <i>by-product of water disinfection</i> | 0.030 | 0.019 - 0.044 | 0.080 | N/A | No | quarterly |

Table 1

Definitions and Abbreviations for Table 1 and Table 2

1. Highest Level Detected – in most cases, this the annual average of all samples collected during the CCR calendar year.
2. Maximum Contaminant Level (MCL) - The highest contaminant level that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
3. Maximum Contaminant Level Goal (MCLG) - Level of a contaminant in drinking water below which there is no known or expected risk to health.
4. Treatment Technique (TT) - A required process intended to reduce the level of a contaminant in drinking water
5. Turbidity - Turbidity is a measurement of cloudiness of water due to suspended particles.
6. NTU – nephelometric turbidity units
7. State regulated applies to contaminants regulated at the State not Federal level.
8. Distribution system applies to contaminant levels found at consumers’ tap.
9. Action Level (AL) – The concentration of a contaminant that triggers treatment by the water supply
10. Maximum residual disinfectant level (MRDL) - The highest disinfectant level allowed in drinking water.
11. Maximum residual disinfectant level goal (MRDLG) – Drinking water disinfectant level below which there is no known or expected risk to health.
12. mg/L – milligrams per liter
13. N/A – not applicable
14. the simplest structure within phosphate groups

Table 2 contains contaminants that are not regulated by USEPA or State agencies.

| Unregulated Contaminants | | | | | |
|--|-------------------------------|------------------------|------------|-------------|-----------------|
| Contaminant and Source of Contamination | Highest Level Detected (mg/L) | Range of Levels (mg/L) | MCL (mg/L) | MCLG (mg/L) | Collection Date |
| pH <i>naturally present</i> | 7.58 | 7.30 – 7.84 | N/A | N/A | every 2 hours |
| Total Alkalinity (as CaCO ₃) <i>naturally present</i> | 100 | 96 - 108 | N/A | N/A | daily |
| Sulfate <i>naturally present</i> | 29 | single sample | N/A | N/A | 1/12/2015 |
| Phosphate (measured as ortho – <i>footnote 14</i>) <i>water additive used to control corrosion</i> | 0.34 | 0.30 - 0.42 | N/A | N/A | daily |

Table 2

The sources of drinking water (both tap water and bottled water) include rivers, lakes, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it can dissolve naturally occurring minerals and pick up substances resulting from the presence of animals or from human activity. Possible contaminants consist of:

- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants
- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from storm water runoff, industrial, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from 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 and storm water runoff
- Radioactive contaminants can be naturally-occurring or be the result of oil and gas production and mining activities.

Is the water safe?

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. 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.

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 (800-426-4791).

Lead and Copper

Lead in drinking water is primarily indicative of household plumbing and/or service line corrosion. We cannot control the variety of materials used in plumbing components. However, we add blended phosphate to the water to minimize the leaching of lead containing plumbing material. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at <http://www.epa.gov/safewater/lead>

Free Lead and Copper Test - If you have lead soldered plumbing and would like to have your water tested for lead and copper corrosion please contact us.

Boil Orders

The majority of boil orders that we issue are due to repair/replacement of water mains, valves, hydrants and other water system repairs. In most cases, we have to shut the water off to perform the necessary work and issue a boil order notice as a precaution.

Projects Completed in 2015

Installation of new equipment in settling basins at the Water Plant.

Replacement of backwash filter valve at the Water Plant.

Installation and commissioning of a new Emergency Generator at the Water Plant. This bolsters our ability to continue to treat and pump water during power outages without reducing capacity.

Water Main replacement on Lewis Avenue at Yorkhouse Road. This was performed in cooperation with Lake County DOT repaving project.

Installation and commissioning of over a mile of water main along Belvedere Rd from O'Plaine Road to River Road. This was part of private development.

Relocating water main as part of the Lake County Courthouse Expansion program.

Get Involved

If you have any questions or comments about this report please contact Julia Adamiak (lab supervisor) or Brian Andersen (Water Utilities Superintendent) at 847-599-2687. You may also attend any of our regularly scheduled meetings that convene on the first and third Monday each month at the Council Chambers of City Hall located at 100 Martin Luther King Jr. Ave. Please call 847-599-2500 for meeting times.
