

Information from Chicago Department of Water Management



League of Women Voters of Chicago

Natural Resources/Chicago Water Briefing, November 12, 2016



Materials from the Department of Water Management City of Chicago
www.cityofchicago.org/city/en/depts/water.html

Department of Water Management Barrett B. Murphy, Commissioner

The **Department of Water Management** is responsible for delivering nearly 1 billion gallons of fresh pure water to the residents of Chicago and 125 suburban communities every day. We are also responsible for removing the waste water and storm runoff from the streets of Chicago through the sewer system, and delivering the effluent for treatment to the Metropolitan Water Reclamation District of Greater Chicago. All of this is accomplished through a network of purification plants, tunnels, pumping stations, water mains, sewer mains, valves and structures that require constant upkeep and maintenance.

Water Supply



Aerial view of the James W. Jardine Water Purification Plant located just North of Chicago's Navy Pier.

The Bureau of Water Supply provides just under one billion gallons of water a day to Chicago and neighboring suburban communities. Raw water enters the crib about 2-miles out in the lake and is sent to one of two purification plants where the water is treated and impurities removed. The water then flows by gravity to 12 pumping stations strategically located throughout Chicago. At the pumping stations the water is elevated to our grid mains and pressurized. This allows the water to be delivered to homes and business throughout Chicago.

Our laboratories test for water quality 24-hours a day 365-days a year. Water supplied by the Department of Water Management exceeds existing and proposed water quality standards established by the United States Environmental Protection Agency and the Illinois Pollution Control Board.

If you are concerned about the potential of elevated lead levels in your home's water, you may wish to have your water tested.

The test kit consists of three bottles, a mailing box, and instructions. Follow the instructions included in your kit for collecting water samples in your home, put the bottles in the shipping box and place it in a location (such as the entryway or front door) for pick up by Department of Water Management (DWM) staff.

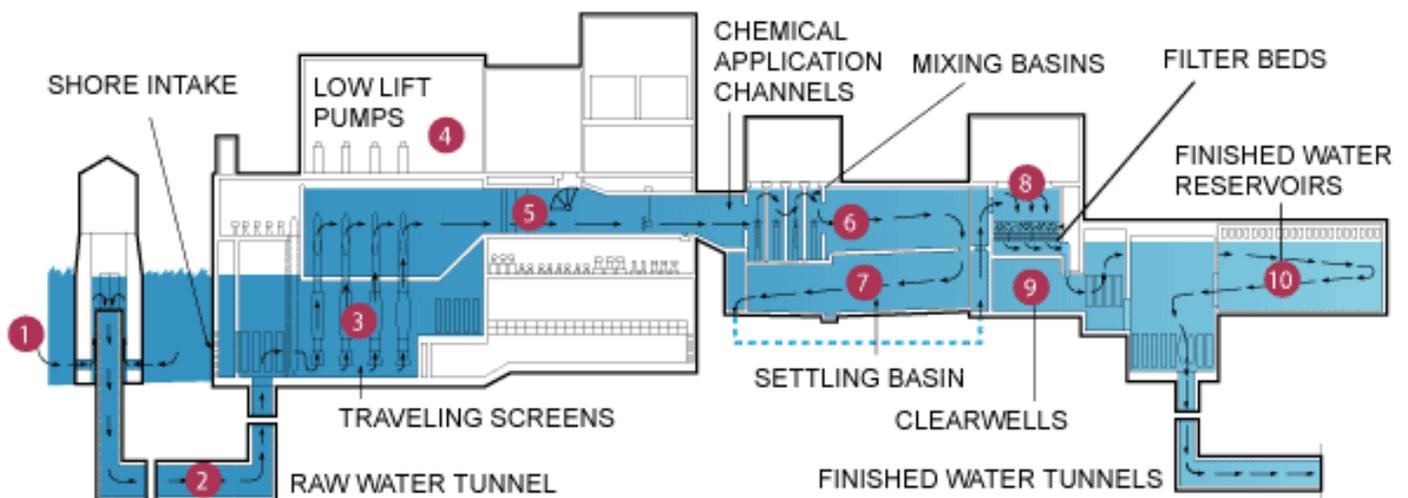
If you would prefer to schedule a time for a DWM representative to come to your home to take water samples, keep in mind that this appointment must be scheduled for a time when you are home and you have not used your water for over 6 hours. Please call 311 or fill out the form at

<http://www.chicagowaterquality.org/> and a representative will reach out to you to schedule a visit.

<https://www.epa.gov/il/advice-chicago-residents-about-lead-drinking-water>

Water Treatment

Lake Michigan, by volume, is the second largest Great Lake and the only one located totally within the United States. It serves as a source of drinking water, as a place for swimming and fishing, and as a scenic wonderland.



THE PROCESS

1. Water from Lake Michigan enters the intake crib at depths of 20 to 30 feet.
2. Water enters the purification plant's intake basin through a tunnel beneath the lake bed.
3. Water is filtered through eight traveling screens to catch debris.
4. Water is pumped by low lift pumps up to 25 feet for the first chemical treatment.
5. Water flows from the chemical application channels.
6. Water flows through mixing basins to begin the flocculation process.
7. Flocculated water passes into settling basins to sit for hours allowing floc to settle.
8. Water is filtered through precisely graded sand and gravel performing a "natural polishing".
9. Filtered water flows into clear wells for its final chemical application.
10. From finished water reservoirs water flows to the distribution system.

Treatment makes the water safe for people to drink. Because water is a good solvent, it picks up all sorts of natural pollutants.

In nature, water is not always clean enough for people to drink. When the microscope was invented in the 1850s, germs could be seen in water for the first time. In 1902, Belgium was the first country to use chlorine to clean or treat water in a public water supply. Today, almost every city in the world treats their drinking water. Treatment includes disinfection with chlorine or other chemicals to kill any germs in the water.

They test water composition from every point in our system, reporting their findings to our Control Engineers. They make decisions on everything from water sources to the mix of chemicals applied in the purification process.

Our pumping stations distribute pressurized water throughout our city. Chicago doesn't use water towers in the distribution system. A few of the suburbs do use towers so that pressure is supplied by gravity and kept uniform.

We use several chemicals in the purification and treatment of water:

Chlorine: to disinfect the water.

Aluminum Sulfate or Alum and Polymer: for coagulation to settle out impurities.

Blended Polyphosphate: to coat pipes and prevent lead leaching.

Activated Carbon: to remove unpleasant tastes and odors.

Fluoride: to help fight cavities in children's teeth.

Chemical amounts are quite small. The total volume needed to treat 100 gallons of water is about a teaspoon full. That's 15 parts of chemical to 1 million parts of water.

What Can I Do to Conserve and Manage Water?

Chicago was built along Lake Michigan and the rivers because of its access to water. Lake Michigan and the other Great Lakes hold one-fifth of the Earth's fresh water. One might ask, with so much water nearby why worry about wasting it? As caretakers of this precious resource, it is our duty to care for it responsibly and ensure that it remains a healthy resource for future generations.

What YOU can do?

Conserve

- Run the dishwasher and washing machine only when there is a full load or use low water level features. Water your lawn in the early morning, when temperatures are cooler, to minimize evaporation. Repair dripping faucets and leaky toilets.
- Don't dump
- Take your motor oil or household chemicals to city-sponsored household hazardous waste drop-off events for disposal. Don't dump it down the drain or in the sewer.

Manage Stormwater

- Disconnect your downspouts when appropriate. Water runoff during heavy storms can overload Chicago's sewer system, thus dumping sewage into the river.
- Use the rainwater from your roof by letting it run onto your garden.

Water Facts

- Turning the water off while brushing your teeth, shaving, or washing your face could save between 10 and 20 gallons of water per person per week.
- The bathroom accounts for 75 percent of the water used inside the home.
- A typical toilet uses up to five gallons per flush.
- A faucet dripping at the rate of one drop per second wastes 2,700 gallons per year.
- A leaky toilet wastes more than 50 gallons of water per day.
- Each gallon of gasoline used requires 1,000 gallons of water to produce.
- Each glass of restaurant water requires two glasses of water for washing and rinsing.
- The used oil from one oil change (approximately 4 quarts of oil), dumped down a storm drain, can contaminate 1 million gallons of water.

Water Meters

MeterSave is a program offered by the City of Chicago Department of Water Management (DWM) to non-metered Chicago homeowners to voluntarily install meters to help them save water and save money.

Homeowner Incentives

Homeowners participating in MeterSave will receive a 7-year guarantee that the home water bill will be no higher than it would have if the meter had not been installed. Upon installation of the meter, and while supplies last, homeowners will be eligible for the following additional incentives:

An outdoor water conservation kit

A hose timer

Rain gauge

Water restricting hose nozzle

Moisture sensor

An indoor water conservation kit, or

Low flow shower head

A shower timer

Toilet flapper

Leak Detection Tablets

Toilet tank bank--a toilet tank water displacement pouch

4-quart fill cycle diverter that helps save water after flushing the toilet

Swivel low-flow kitchen aerator

Two bathroom sink aerators

Teflon tape

Water Conservation wheel

Water meter monitor (a refrigerator magnet that shows water usage)

And, two of the above incentives if an entire block volunteers!