City of Evanston

2003 Water Quality Report

We are pleased to bring you Evanston's annual water quality report, an information service for our water customers. The Evanston water utility is committed to providing you with the highest quality of drinking water. In 2003, as in past years, your tap water has met all USEPA and State drinking water health standards and has had no violations to report. Of the hundreds of substances that are monitored, only a handful were actually detected in our drinking water, and all substances detected were far below a level at which there is any known health risk!

Capital Improvement Program

In order to ensure that the water we provide to you is safe and reliable, the Evanston Water Utility continually plans improvements to renew and replace our existing infrastructure and improve services. A number of major improvements are currently in the design phase to be constructed/installed this year:

- New garages will be installed to provide better facilities for the maintenance and care of the Division's fleet.
- A chlorine scrubber will be installed. This unit provides for the safe containment of up to one ton of chlorine in the event of a leak.
- The replacement of one of the existing low lift (raw water) pumping units will improve both reliability and capacity.

Today, the Water Department's 42 employees continue Evanston's tradition of excellence by working around the clock for your health and safety. We're proud of our water and pledge to continue to provide you with the highest quality water that is humanly and technologically possible.

Your Water Source

Lake Michigan, Evanston's source of water, is not just a major commerce artery and a recreational resource with miles of scenic shoreline. It's also a great source of drinking water! Almost half of the world's fresh water comes from Lake Michigan and the other Great Lakes. According to the United States EPA, the quality of Lake Michigan water has improved dramatically over the past 20 years. The regulations in place restrict the industrial and sewage treatment plant effluents from entering Lake Michigan thereby lowering the risk of having these contaminants in the water. All 63 miles of shoreline within Illinois are now considered to be in good condition.

Summary of Illinois EPA Source Water Assessment of Lake Michigan as a Drinking Water Source

The EPA report states that there is concern for Lake Michigan water quality and also water quantity. A 1967 U.S. Supreme Court decree limits the amount of Illinois diversions of water from Lake Michigan, and currently Illinois is reaching its limit on that allocation. 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 intakes with no protection, only dilution. This is the reason for mandatory treatment for all surface water supplies in Illinois. Evanston recognized the need for treatment long before these requirements came into effect. In fact, Evanston has operated a water treatment facility for over 100 years!

All three of Evanston's water intakes are located far enough offshore that shoreline impacts are not considered a factor on water quality. However, at certain times of the year the potential for contamination due to the proximity of the North Shore Channel in wet-weather flow conditions exists. The report further notes Evanston's membership in such organizations as the West Shore Water Producer's Association and the coordination regarding water quality issues that takes place between the utilities on the west shore of Lake Michigan.

View the City's web site at www.cityofevanston.org for more information on our water treatment process.

Thank you for the opportunity to serve you.

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EVANSTON 2003 WATER QUALITY DATA

Detected Substances

Substance	Goal (MCLG)	Highest Allowed (MCL)	Evanston Result	Evanston Minimum	Evanston Maximum	Source of Contamination
Turbidity (Cloudiness)	NA	TT=Monitored by % Exceeding 0.3 NTU and max allowed is 1 NTU	0% of samples exceeded 0.3 NTU	0.01	0.08	Soil runoff.
Beta/Photon Emitters (pCi/l)*	0	50	2	2	2	Decay of natural and man-made deposits.
Arsenic (ppb)	NA	10	0.6	0.6	0.6	Erosion of natural deposits.
Barium (ppm)	2	2	0.020	0.020	0.020	Erosion of natural deposits.
Nitrate & Nitrite (ppm)	10	10	0.344	0.344	0.344	Runoff and natural erosion.
Fluoride (ppm)	4	4	.98	.98	.98	Fluoride is added to promote dental health.
Lead (ppb)**	NA	Action Level = 15	10	0	14	Corrosion of household plumbing.
DISINFECTION BY-PRODUCTS	**Goal (MCLG)**	**Highest Allowed (MCL)**	**Evanston Result**	**Evanston Minimum**	**Evanston Maximum**	**Source of Contamination**
Total Trihalomethanes (ppb)	NA	80	21.2	14.2	33.0	By-product of drinking water chlorination.
Total Haloacetic Acids (ppb)	NA	60	11.7	8.0	17.2	"
Unregulated Parameters	**Goal (MCLG)**	**Highest Allowed (MCL)**	**Evanston Average**	**Evanston Minimum**	**Evanston Maximum**	**Source of Contamination**
pH (0-14 pH units)	NA	NA	7.5	7.4	7.7	General Water Chemistry Parameter.
Hardness (as $CaCO_3$)	NA	NA	130	123	148	Calcium or magnesium.
Alkalinity	NA	NA	102	85	116	General Water Chemistry Parameter.
Sodium (ppm)	NA	NA	6.3	6.3	6.3	Runoff and natural erosion.

The Evanston Water Utility was required to monitor for contaminants required under the Unregulated Contaminant Monitoring Rule (UCMR). None of the contaminants were detected in the Evanston Water Supply.

The Evanston Water System monitored the percentage of Total Organic Carbon (TOC) removal each month and met all TOC removal requirements set by the IEPA.

ppm = parts per million or milligrams per liter
ppb = parts per billion or micrograms per liter
pCi/l = picocuries per liter, a measure of radioactivity
NTU = nephelometric turbidity units (measures water clarity)
TT = Treatment Technique, a required process to reduce the level of a contaminant.
Disinfection by-products = Total Trihalomethanes are used to regulate the amount of allowable by-products of chlorination. Total Trihalomethanes represent the sum of bromodichloromethane, bromoform, chloroform, and dibromochloromethane which are not individually regulated.
Fluoride = The Illinois Department of Public Health recommends an optimal fluoride range of 0.9 ppm to 1.2 ppm.
Sodium = There is not a state or federal MCL for sodium. Sodium levels below 20 mg/l (ppm) are not considered to be a health issue.
Turbidity = Turbidity is a measurement 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 process.
MCLG = Maximum Contaminant Level Goal, the level of a contaminant in drinking water below which there is no known or expected risk to health.
MCL = Maximum Contaminant Level, the highest level of a contaminant that is allowed in drinking water. A MCL is set as close to a MCLGas feasible based on what a water utility can achieve using the best available technology.
Action Level = The concentration of a contaminant which, if exceeded, triggers treatment or other requirements the water system must follow.
Lead = There is no detectable lead in the water provided to the Evanston community. Lead enters the water from lead solder, lead pipes or plumbing fixtures in the home. To minimize contamination resulting from corrosion, the EPA established a lead action level of 15 ppb in 1992. The 90th percentile result of samples analyzed for lead content in homes with lead pipes must be less than the action level of 15 ppb. In 2002, Evanston took water samples from 30 homes with lead service lines and analyzed them for lead content. None of the results exceeded the action level of 15 ppb and the 90th percentile level of 10 ppb.

*last tested in 1997 due to historically low levels
** last tested in 2002 due to historically low levels

Where do contaminants come from?

In general, people obtain drinking water (both tap and bottled water) from 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 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:

1) microbial contaminants from a variety of sources, such as viruses and bacteria which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife;

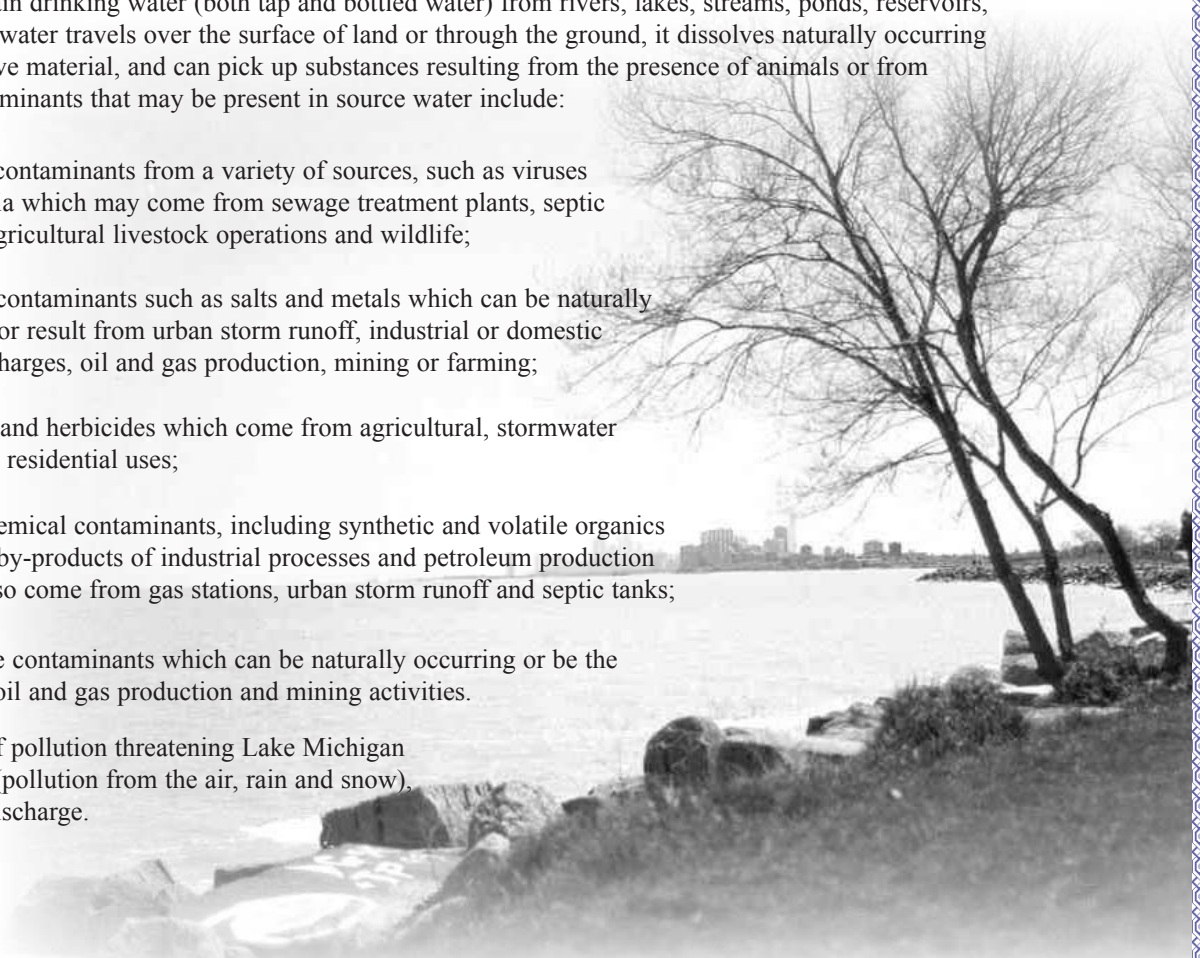
2) inorganic contaminants such as salts and metals which can be naturally occurring or result from urban storm runoff, industrial or domestic water discharges, oil and gas production, mining or farming;

3) pesticides and herbicides which come from agricultural, stormwater runoff and residential uses;

4) organic chemical contaminants, including synthetic and volatile organics which are by-products of industrial processes and petroleum production and can also come from gas stations, urban storm runoff and septic tanks;

5) radioactive contaminants which can be naturally occurring or be the results of oil and gas production and mining activities.

The primary sources of pollution threatening Lake Michigan include air deposition (pollution from the air, rain and snow), runoff and industrial discharge.



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. In order to ensure that tap water is safe to drink, the 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.

During 1997 and 1998, the Evanston Water Department sampled untreated lake water on a monthly basis for the presence of cryptosporidium, a microbial parasite. Of 18 samples analyzed, only one empty cryptosporidium cell was detected prior to the filtration process. Cryptosporidium is generally removed through filtration - which removes solid particles - and disinfection.

Some people may be more vulnerable to contaminants in tap or bottled 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 for infections. These people should seek advice about drinking water from their health care providers. The EPA and Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by cryptosporidium are available from the Safe Drinking Water Hotline, (800) 426-4791 or visit, www.epa.gov/OW.

For specific information about the Water Department, your water's quality, a complete water quality report of all tested contaminants or any other water-related question, please contact the Evanston Water Department at (847) 866-2942. The public is welcome to attend our Council meetings where decisions related to the water treatment facility are made.

More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791.

City of Evanston

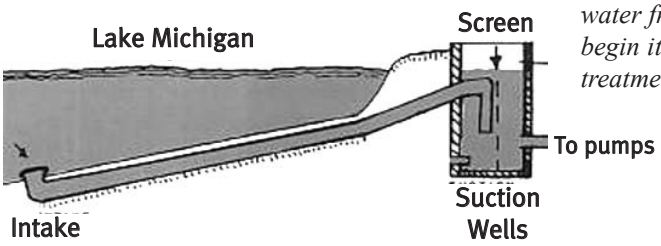
2003 Water Quality Report

About your water

The Evanston Water Treatment Plant has the capacity to pump up to 108 million gallons a day of pure drinking water to Evanston and the other communities we serve: Skokie, and the Northwest Water Commission comprised of Arlington Heights, Buffalo Grove, Palatine and Wheeling. Evanston's vast water system includes 155 miles of water mains, two multimillion gallon storage facilities and almost 1,300 hydrants.

From the raw water pumps that bring water in from Lake Michigan, to the finished water pumps that send the treated water to your home, system redundancies such as auxiliary natural gas engines are in place so you'll never go without safe drinking water.

Here's how it's done:



Six centrifugal pumps lift the water from suction wells to begin its journey through the treatment plant.

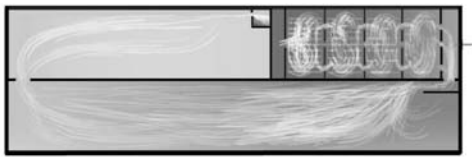
Low Lift Pumps

Chemical Feeders

Flash Mix

Chlorine to disinfect, fluoride for dental health and aluminum sulphate and polymers to coagulate suspended solids and form a floc, are added to the water at flash mix. Carbon is added as necessary to mitigate taste and odor.

Slow Mix Basins



The floc, resulting from coagulation, contains algae, bacteria and other impurities which sink to the bottom of the settlement basins in four to eight hours.

Water flows through filters which contain a layer of anthracite coal and filter sand, removing the tiniest of particles.

Filters

After post chlorination, water goes to reservoirs where a blended phosphate is added for corrosion control. Water is continuously sampled and analyzed for quality assurance before being pumped into the distribution system.

Questions & Answers

Is it true that tap water quality is getting worse?

No. It might seem that way from what you read and hear, but actually the opposite is true. Water suppliers must meet many more rules today than we did a few years ago, and standards for many of the regulated chemicals and microbes are more strict. Twenty-five years ago, we did not have the technology to know what was in our drinking water. Today, we have sophisticated testing instruments that enable us to know more about our water than ever before. The drinking water community is continually improving treatment processes as it learns more each year.

Is bottled water safer than tap water?

Not necessarily. Studies have shown that microbes may grow in the bottles while on the grocers' shelves. You don't need to buy bottled water for safety reasons if your tap water meets all federal and state drinking water standards (Evanston's does!). If you want water with a different taste, you can buy bottled water, but it costs up to 1,000 times more than tap water. Of course, in emergencies, bottled water can be a vital source of drinking water for people without water. One important difference between tap and bottled water is that the U.S. Food and Drug Administration (FDA) regulates bottled water, and the U.S. Environmental Protection Agency regulates tap water. Both sources are required to meet the same water quality standards; however, the EPA requires public water utilities to continually monitor water quality whereas the bottled water industry must test source water and finished products once per year.

What is "hard" water?

The answer may surprise you. Hardness in drinking water is caused by two nontoxic chemicals-usually called minerals: calcium and magnesium. If either of these minerals is present in your water in substantial amounts, the water is said to be "hard," because making a lather or suds for washing is "hard" (difficult) to do. Thus cleaning with hard water is difficult. Water containing little calcium or magnesium is called "soft" water (Maybe it should be called easy!). Evanston's water is considered to be moderately hard. It ranges from 123 parts per million of hardness to 168 and averages 136 parts per million or approximately 7.5 grains. This level of hardness does not require the use of a water softener.

Is it okay to use hot water from the tap for cooking?

No. Use cold water. Hot water is more likely to contain rust, copper and lead from your household plumbing and water heater because these contaminants generally dissolve into hot water from the plumbing faster than into cold water.

Credit or debit:

Pay your water bills online

Convenience is a major factor in the popularity of the City of Evanston's online water bill payment system. Almost 1,000 of the City's water customers are keeping their stamps and paying electronically.

"I pay my bills online as much as possible," said Evanston resident and new mom Elizabeth Boesen. "I learned to simplify my life after I had kids," she added.

The online service, which accepts both credit and debit cards, debuted last fall. According to the software company who created the system, Evanston's water customer participation has far exceeded any other City using its service.

"We have three times more residents paying online this early in the service than any of the other municipalities serviced by Kubra Data Transfer, LTD," announced Kevin Lookis, manager of the City Collector's Office.

"I was the City's first customer," said Boesen. "When I heard it was coming, I kept checking the web site (www.cityofevanston.org).

"The City has come a long way; from the prehistoric water billing service where customers had to supply their own envelopes, to the online service. I'm impressed," she added.

Lookis pointed out that unlike many companies in the banking industry, the City withdraws its payments on the dates that residents schedule.

"You can set up the online payment system with your bank who may take your money a couple of days earlier than you scheduled," said Lookis. "Or, you can set up the payment with us, and we'll charge your account on the date you selected."

Lookis refers to some recent glitches in banking where customers have been charged for overdrafts because their banks withdrew their money days before the banks actually make the payments.

Many of these customers have also been hit with late fees, since many banks ultimately cut a paper check and snail mail it without supporting materials, ultimately making their customers' payments past due.

"We're electronic-payment-friendly, so you can pay us through a system that you set up with your bank," Lookis said. "But if you set up the system with us, you can be assured your account will be charged and received by the City on the date you selected."

City of Evanston

2003 Water Quality Report

Fun Water Facts

- 75% of the human brain is water, and 75% of a living tree is water.
- Lack of water is the number one trigger of daytime fatigue.
- 95% of Earth's water is in the oceans. Only 3% of the Earth's water can be used as drinking water and only 1% of the world's fresh water is suitable for drinking water (75% of the fresh water is frozen and therefore unusable).
- 75% of Americans are chronically dehydrated.
- In 37% of Americans, the thirst mechanism is so weak that it is often mistaken for hunger.
- Even mild dehydration will slow down one's metabolism as much as 3%.

- One glass of water shuts down midnight hunger pangs for almost 100% of the dieters studied in a University of Washington Study.
- A person can live without food for approximately one month. A person can live without water for approximately one week, depending on conditions.
- Preliminary research indicates that 8-10 glasses of water per day could significantly ease back and joint pain for up to 80% of sufferers.
- A mere 2% drop in body water can trigger fuzzy short-term memory, trouble with basic math, and difficulty focusing on the computer screen or a printed page.
- Drinking 5 glasses of water per day decreases the risk of colon cancer by 45%, can reduce risk of breast cancer by 79%, and makes one 50% less likely to develop bladder cancer.

Words on Water

Unscramble each of the clue words:

LESFITR

HLRECNOI

WAERT METTERTAN

NAOTUIACLOG

IUTYDRBTI

EDFULIOR

Take the letters that appear in the blue boxes and unscramble them for the final message.

Answers: *Filters, Chlorine, Water Treatment, Coagulation, Turbidity, Fluoride, Clean Water*