

Northbrook Water Consumer Confidence Report

General Introduction to Water Supplies

This information is provided as required by U. S. Environmental Protection Agency & Illinois Environmental Protection Agency. The many terms and acronyms used in the following paragraphs are defined below. If you have any questions or want to know where to find additional information about our water supply, contact Ken Gardner, Utilities Superintendent, at ken.gardner@northbrook.il.us or 847/664-4113.

Sources of Drinking Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and groundwater 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. It also can pickup substances resulting from the presence of animals or from human activity.

Our water comes from Lake Michigan. Northbrook had no water quality violations during the past year. Please share this information with other people who drink this water, especially those who may not have received this notice directly (for instance, people in apartments, nursing homes, schools or businesses). You can do so by posting this notice in a public place or distributing copies by hand or via US mail.

Contaminants that may be present in source water include:

- Disinfection By-Products (DBPs), including total trihalomethanes (TTHMs) and haloacetic acids (HAA5s), are by-products of chlorine and certain organic compounds present in raw water. The maximum contaminant levels for TTHM and HAA5 are 80 µg/l and 60 µg/l respectively. Some people who drink water containing DBPs in excess of the Maximum Contaminant Levels (MCL) over many years experience problems

with their livers, kidneys or central nervous system, and may have increased risk of developing cancer;

- Lead, if present in elevated levels, 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. Northbrook 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 or at www.epa.gov/safewater/lead. Northbrook remains in compliance with the lead and copper regulations;
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses;
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities;

- Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming;
- Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife;
- 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 storm water runoff, and septic systems;
- Sodium which is not regulated by US Environmental Protection Agency (USEPA) or Illinois Environmental Protection Agency (IEPA), but monitoring is required to provide information about sodium uptake due to dietary precautions. If the level is greater than 20 mg/l and you are on a sodium restricted diet, you should consult a physician;
- Turbidity is a measure of the 'cloudiness' of water. It is good indicator of water quality and the effectiveness of our filtration system and disinfection practices. Our water leaves the plant at 0.04 NTUs.

Other Facts about Drinking Water

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 Environmental Protection Agency's Safe Drinking Water Hotline at 800/426-4791. 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. Food and Drug (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

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, and 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 and Center for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the EPA Safe Drinking Water Hotline at 800/426-4791. No evidence of Cryptosporidium has ever been found in Northbrook's water.

Some Facts About Northbrook's Water System

Northbrook is the only off-shore community in the Chicago area to draw water directly from Lake Michigan and process it at an inland water filtration plant.

Since 1963, Northbrook has increased rated production capacity from 6 million gallons per day (MGD) to approximately 20 MGD.

Our water supply begins in Lake Michigan in Glencoe. Raw water flows through two intake lines. The older (1963) 30" intake extends 2,550' from shore, ending in an intake structure with 3 cone-shaped "funnels" located 23+ feet under the surface of Lake Michigan. The newer (1993) primary intake, is 48-inches in diameter, 6,400 feet in length and 36+ feet under the surface with one large flared riser surrounded by a 35-foot square by 8-foot high wooden timber crib. Water flows by gravity into a 28-foot deep, 26,000 gallon "suction well" in the pump station at the shoreline. Seven various sized vertical turbine "low lift" pumps, controlled by Water Plant Operators at the Filtration Plant, pump the raw water through 2.9 miles of 24 and 30-inch mains to the Plant for processing. Water is filtered through anthracite/sand media filters, chlorinated for disinfection, and fluoridated for prevention of tooth decay. The newest (1994) 8 MGD plant addition uses multi-media filters with additional anthracite and two gradations of crushed garnet.

After treatment at the Plant, eight "high lift" pumps of various sizes send the processed water through a network of about 170 miles of water mains. Three additional system pumps are located at the West Side Reservoir. The Water Plant is staffed around-the-clock. Operators are required to obtain the highest competency (Class A) certificates from the Illinois EPA which requires passing a rigorous series of exams.

Tap water is typically delivered in the 40 - 60 PSI pressure range throughout Northbrook. Higher elevation areas experience lower pressures.

Periodically, water issues are addressed by the Village Board of Trustees. The Village Board normally meets on the second and fourth Tuesdays of each month at 7:30pm at the Village Hall, 1225 Cedar Lane. Exact times and dates can be verified by calling the Village Hall at 847/272-5050 or visit www.northbrook.il.us



Source Water Assessment

The Illinois EPA considers all surface water sources to be susceptible to potential pollution. By nature surface water allows contaminants to migrate into the intakes with no protection except dilution.

Thus IEPA mandates treatment for all Illinois surface water supplies. A workgroup from the Great Lakes States organized to develop a protocol for assessing the Great Lakes. The mission of the Great Lakes Protocol workgroup was to develop a consistent procedure with the flexibility to properly conduct source water assessments of our Great Lakes drinking water sources. According to the IEPA, this flexibility takes into account source variability and site specific concerns for determination of source sensitivity and susceptibility. Sensitivity is the intrinsic ability of surface water to be isolated from contaminants by the hydrologic or geologic attributes. According to the sensitivity analysis, Northbrook's two intakes are located far enough offshore that shoreline point

sources are not a water quality factor. However, at certain times of the year, the potential for contamination exists due to storm water runoff and wet weather flows from the North Shore Channel. If currents are flowing in a northerly direction, contaminants from these flows could migrate to Northbrook's intakes and compromise water quality. A correlation between Northbrook's rainfall data and coliform data, combined with North Shore Channel discharge dates, show the potential effect of these flows on Northbrook's water quality. The best way to ensure a safe source of drinking water for a water supply is to develop a program designed to protect the source water against potential contamination on the local level. Since land use within the Illinois Lake Michigan watershed is mostly urban, most watershed protection activities in this document are aimed at this purpose. Citizens must be aware that activities around the house may have a negative impact on their source water.

The main efforts of the immediate community should be to promote an awareness of storm water drains and their direct link to Lake Michigan. A proven best management practice (BMP) for this purpose is the stenciling of a notice indicating the connection between storm water drains and the lake. Stenciling, along with education about proper storage, disposal and use of potential contaminants, is necessary to continue to keep Lake Michigan a safe reliable source of drinking water.

Water supply officials from Northbrook are active members of the West Shore Water Producers Association. Coordination regarding water quality situations (i.e., spills, tanker leaks, exotic species, etc.) and watershed protection are frequent topics discussed at quarterly meetings of this organization. Lake Michigan, as well as all the Great Lakes, has a variety of organizations and associations that are currently working to either maintain or improve water quality.

Water Test Results

Substance	Type	Units	MCLG	MCL	Range of Levels	HDL	Comments
Barium	Inorganic	mg/l	2	2	0.0217 – 0.0217	0.0217	Drilling waste & metal refinery discharge, natural element
Chlorine	Inorganic	mg/l	MRGLG/MRDL = 4		0.9 – 1.2	1	Water Additive for disinfection.
Coliform (non-fecal)	Microbial	% present	<5% monthly positive		0 - 2.3	2.3	Naturally present in environment
Copper	Inorganic	mg/l	1.3	AL = 1.3	0-0.269 (No site>AL)	0.269	Plumbing, erosion, wood preservative
Fluoride	Inorganic	mg/l	4	4	0.872 – 0.872	0.9	Fertilizer & aluminum factory discharge; decay preventative additive
Haloacetic Acids (HAA5)	DBP	µg/l	n/a	60	7.51 – 20.07	17	Chlorination by-product
Lead	Inorganic	µg/l	0	AL = 15	0-11.3 (No site > AL)	11.3	Plumbing system & natural erosion
Nitrate (as N)	Inorganic	mg/l	10	10	0.318 - 0.318	0.318	Fertilizer & septic run-off, sewage
Radium Combined	Radioactive	pCi/l	0	5	1 - 1	1	Erosion of natural deposits
Sodium	Inorganic	mg/l	n/a	n/a	8 – 8	8	Natural erosion, water softener
Total Trihalomethanes	DBP	µg/l	n/a	80	16.53 – 58.3	41	Chlorination by-product
Turbidity	Microbial	NTU	95 % samples per month must < 0.3 NTU		100% <0.3 NTU		Soil runoff
Turbidity	Microbial	NTU	Limit TT = 1 NTU		highest single result = 0.05		Soil runoff

Note: Test results completed in 2015, except copper and lead, which were part of the 2014 official LCR sampling, and Radium, which was 2011.

Note: The percentage of total organic carbon (TOC) was measured each month. Northbrook meets all IEPA requirements.

AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.	MRDL	Maximum Residual Disinfectant Level: The highest level of disinfectant allowed in drinking water.
DBP	Disinfection By-Products	MRDLG	Maximum Residual Disinfectant Level Goal: The level of disinfectant in drinking water below which there is no known or expected risk to health. MRDLGs allow for a margin of safety.
HDL	Highest Level Detected	N/A	Not Applicable
MCL	Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the Maximum Contaminant Level Goal as feasible using the best available treatment technology.	ng/l	Nanograms per liter: equivalent to parts per trillion or ounces per 7,350,000,000 gallons of water
MCLG	Maximum Contaminant Level Goal: 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.	NTU	Nephelometric Turbidity Units
mg/l	Milligrams per liter: equivalent to parts per million (ppm) or ounces per 7,350 gallons of water	pCi/L	picocuries per liter (a measure of radioactivity)
µg/l	Micrograms per liter: equivalent to parts per billion (ppb) or ounces per 7,350,000 gallons of water	ppb	parts per billion or micrograms per liter (ug/L): or one ounce in 7,350,000 gallons of water.
		ppm	parts per million or milligrams per liter (mg/L): or one ounce in 7,350 gallons of water.
		TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

Addressing Concerns About Lead Levels in Drinking Water

The United States Environmental Protection Agency (USEPA) has set the action level of lead in drinking water at 15 µg/l. However any detectable lead makes it advisable to reduce lead levels as much as possible. Lake Michigan water is virtually lead free. Lead contamination, if it does occur, results from corrosion of the element from service lines and/or household plumbing. Homes in neighborhoods constructed before the early 1950s may have lead service lines, and those built prior to 1987 may have plumbing fixtures containing significant amounts of lead.



As time passes, mineral deposits tend to form a coating on the inside of the pipes, which insulates the water from the lead. To enhance this process the Village treats our water with poly-orthophosphate, which reacts with lead and copper and calcium and magnesium to form an insoluble coating on pipe walls. This coating greatly limits dissolution of lead and copper into water. The USEPA has determined that sampling homes with lead services lines or those with lead based solder built between 1982 and 1986 is the best means of determining if water systems are in compliance with the Lead Copper Rule (LCR). These sites are tested every three years.

The Village replaces lead service lines (main to B-box) encountered during water main replacement programs. *While this has a long term benefit, it may cause elevated levels of lead in an individual plumbing system for up to several months.* The Village will perform lead/copper tests prior to disruption of the service and again after the work is complete if the private portion of the homeowner's service line remains lead. All results are shared with the property owner. The Village requires replacement of lead lines for properties undergoing substantial remodeling or demolition.