

# Annual Water Quarterly Report 2009

Dear Resident:

Since 1998, the United States Environmental Protection Agency (USEPA) has required the Village's water plant, as a water producing and treatment agency, to conduct water quality tests and to inform residents of the test results. The Village is pleased to report that again for the year 2009, the water plant met or exceeded the USEPA standards, and did not have a violation of a contaminant level or any other water quality standard. This article will detail the water treatment process and explain the USEPA water quality standards. The Wilmette Water Plant is committed to providing you with the safest and most reliable water supply.

We encourage public interest and participation in our community's decisions affecting drinking water. Regular Village Board Meetings occur on the second and fourth Tuesdays each month starting at 7:30 pm at the Village Hall, 1200 Wilmette Avenue. Information on agendas for these meetings can be viewed at the bulletin boards located at the Metra Train Station and the Village Hall or on the Village's web site, [www.wilmette.com](http://www.wilmette.com). Detailed information on the water purification process is also available on this website. For questions about this report or to receive a copy, please contact Ray S. Ames Jr., Water Plant Superintendent, at 847-853-7531 or at [amesr@wilmette.com](mailto:amesr@wilmette.com). Further information on our community water supply's source water assessment is available on the USGS web site at <http://il.water.usgs.gov> or by calling the Groundwater section of the Illinois EPA at 217-785-4787.

The drinking water supplied by the Wilmette Water Plant meets or surpasses all Federal and State drinking-water standards.

## Water Treatment Process

The Village receives its raw water from Lake Michigan. It is treated at the Wilmette Water Plant on the lakefront and pumped into the water distribution system. A standpipe (4 million gallons) and an underground reservoir-pumping station (3 million gallons) provide additional storage of treated water on the west side of the Village. These storage reserves are used to maintain water pressure in the distribution system.

The water plant uses a mixture of chemicals, settling basins and filters to remove all contaminants to below regulated levels. A chlorine residual is maintained throughout the plant and distribution system to prevent the growth of bacteria. Operators are on duty 24 hours a day year-round to monitor the water system. In addition, the water plant has an Illinois Department of Public Health (IDPH) certified laboratory for conducting bacteriological testing.

At times, the quality of the raw lake water that enters the water plant is affected by the opening of the locks operated by the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC), or from runoff

from the use of fertilizers and herbicides on area lawns and golf courses.

The MWRDGC owns and controls a set of locks located in Wilmette Harbor that are occasionally opened during heavy rainfall events to release sewer overflow into the lake. These contaminants, however, do not affect the quality or the safety of the finished water that is delivered to consumers.

## Source Water Assessment

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, which is the reason for mandatory treatment for all surface water supplies in Illinois. A workgroup from the Great Lakes States was organized to develop a protocol for assessing the Great Lakes. The mission of the Great Lakes Protocol was to develop a consistent procedure allowing the flexibility necessary to properly conduct source water assessments of the Great Lakes as a drinking water source. This flexibility takes into account the variability of these sources and site-specific concerns for determination of source sensitivity and susceptibility (Illinois EPA, 1999). Sensitivity is defined as the intrinsic ability of surface water to be isolated from contaminants by the physical attributes of the hydrologic or geologic setting. With this in mind, the degree of sensitivity becomes the prevailing factor in the susceptibility determination for intakes on the Great Lakes. Intakes located close to shore, or close to a major shipping lane will be more sensitive and thus more susceptible to potential contamination. The sensitivity analysis of both Wilmette's intakes show that they are located enough offshore that shoreline impacts are not considered a factor on water quality. However, at certain times of the year the potential for contamination exists due to wet-weather flows from the North Shore Channel. If currents are flowing in a northerly direction, contaminants from these could migrate to Wilmette's intakes and compromise water quality. Correlation between Evanston's rainfall data, North Shore Channel discharge dates, and Wilmette's coliform data show the potential effect of these flows on Wilmette's water quality. In addition, the proximity to a major shipping lane adds to the susceptibility should there be a spill near the intakes. Water supply officials from Wilmette are active members of the West Shore Water Producers Association. Coordination regarding water quality situations (i.e., spills, tanker leaks, exotic species, etc) is frequently discussed during the association's quarterly meetings. Lake Michigan, as well as all the Great Lakes, has many different organizations and associations that are currently working to either maintain or improve water quality. Since the predominant land use within Illinois' boundary of Lake Michigan watershed is urban, a majority of watershed protection activities in this document is aimed at this purpose.

## Water Contaminants

In order to ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Federal Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

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 dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity. Contaminants that may be present in source water include:

- 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
- Radioactive contaminants, which may be naturally-occurring or be the result of oil and gas production and mining activities

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, 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/Center for Disease Control 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.



## Regulated Contaminants Detected in 2009



### Lead and Copper Test Results

#### Definitions:

**Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which water system must follow.

**Action Level Goal (ALG):** The level of contaminant in drinking water below which there is no known or expected risk to health. ALG's all for a margin of safety.

Lead and Copper	Date Sampled	MCLG	Action Level (AL)	90th Percentile	# Sites Over AL	Units	Violation	Likely Source of Contamination
Copper	08/02/2008	1.3	1.3	0.099	0	ppm	No	Erosion of natural deposits; Leaching from wood preservatives; corrosion of household plumbing systems.
Lead	08/02/2008	0	15	5.99	0	ppb	No	Corrosion of household plumbing systems; erosion of natural deposits.

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 service lines and home plumbing. The Village 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 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 <http://www.epa.gov/safewater/lead>.

### Water Quality Test Results

**Definitions:** The following tables contain scientific terms and measures, some of which may require explanation

**Maximum Contaminant Level or (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**Maximum Contaminant Level Goal or (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.

**ppm or mg/L:** milligrams per liter or parts per million – or one ounce in 7,350 gals of water

**ppb or ug/L:** micrograms per liter or parts per billion – or one ounce in 7,350,000 gals of water

**N/A :** not applicable

**Avg:** Regulatory compliance with some MCLs are based on running annual average of monthly samples

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

**Maximum Residual Disinfectant Goal or (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

**NTU:** Nephelometric Turbidity Units

**TT:** Treatment Technique

Regulated Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	Units	MCLG	MCL	Violation	Likely Source of Contamination
<b>Disinfectants &amp; Disinfection By-Products</b>								
Chlorine		1	0.1 - 1	ppm	MRDLG=4	MRDL=4	No	Water additive used to control microbes
Haloacetic Acids (HAA5)*		13	0 - 11.9	ppb	No goal for the total	60	No	By-product of drinking water chlorination
Total trihalomethanes (TTHM)*		24	13.4 - 27	ppb	No goal for the total	80	No	By-product of drinking water chlorination
<b>Inorganic Contaminants</b>								
Barium		0.02	0.02 - 0.02	ppm	2	2	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride		1.1	1.1 - 1.1	ppm	4	4	No	Erosion of natural deposits; water additive which promotes strong teeth; fertilizer discharge
Nitrate (measured as Nitrogen)		0.57	0.57 - 0.57	ppm	10	10	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Sodium **		12	12 - 12	ppm			No	Erosion of naturally occurring deposits; used in water softener regeneration
Zinc		0.014	0.014 - 0.014	ppm	5	5	No	Erosion from naturally occurring deposits
<b>Radioactive Contaminants</b>								
Combined Radium 226 / 228	1/14/2008	1.69	1.69 - 1.69	0	5	pCi / L	No	Erosion of natural deposits
Gross alpha excluding radon and uranium	1/14/2008	0.72	0.72 - .072	0	10	pCi / L	No	Erosion of natural deposits

\*Not all sample results may have been used for calculating the Highest Level Detected because some results may be part of an evaluation to determine where compliance sampling should be in the future

\*\*There is not a state or federal MCL for sodium. Monitoring is required to provide information to consumers and health officials that are concerned about sodium intake due to dietary precautions. If you are on a sodium restricted diet, you should consult a physician about this level of sodium in water.

Turbidity	Limit (Treatment Technique)	Level Detected	Violation	Source
Highest single measurement	1 NTU	0.1 NTU	No	Soil Runoff
Lowest monthly % meeting limit	0.30 NTU	100%	No	Soil Runoff

Information Statement: Turbidity is a measurement of the cloudiness of the water caused by suspended particles. The Village monitors it because it is a good indicator of water quality and the effectiveness of the Water Plant's filtration system and disinfectants.

### Total Organic Carbon

The percentage of Total Organic Carbon (TOC) removal was measured each month and the system met all TOC removal requirements set, unless a TOC violation is noted in the violation section.

### Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR)

The objective of the LT2ESWTR, published by the US EPA, is to reduce the incidence of disease associated with Cryptosporidium and other pathogenic organisms. As required by the LT2ESWTR, the Village of Wilmette water plant collected source water (Lake Michigan), not finished water, samples for Cryptosporidium, E. Coli, Giardia and turbidity once per month for a period of 24 months from April 2007 to March 2009. Cryptosporidium was detected in the source water (Raw Lake Michigan) in six out of twenty four samples collected. The table to the right summarizes the results:

Contaminant	Highest Level Detected	Range of Levels Detected	Units	Violation
E. Coli	3.1	< 1 - 3.1	MPN/100 ml	No
Giardia	1	0 - 1	Cysts/L	No
Cryptosporidium	0.2	0 - 0.2	Oocysts/L	No
Turbidity	24.9	0.72 - 24.9	NTU	No

Due to the low average concentration detected of Cryptosporidium, the Illinois EPA has determined that the current water treatment used by the Village of Wilmette is sufficient and no additional treatment is required. We believe it is important for you to know that Cryptosporidium may cause serious illness in 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. These people should seek advice from their health care providers.

