

# NORTH SHORE WATER COMMISSION

## 2005 Annual Water Quality Report

### Consumer Confidence Report

This report explains how drinking water provided by the North Shore Water Commission is of the highest quality. Included is a listing of results from water quality tests as well as an explanation of where our water comes from and tips on how to interpret the data. We are proud to share our results with you.

### Regulatory Compliance

Last year, as in years past, your tap water met all U.S. Environmental Protection Agency (EPA) and state drinking water health standards. North Shore Water Commission vigilantly safeguards its water supplies and once again we are proud to report that our system has not violated a maximum contaminant level or any other water quality standard.



### North Shore Water Commission

The North Shore Water Commission governs a municipal water treatment plant that is owned and operated by Glendale, Whitefish Bay, and Fox Point. Since 1962, the residents of all three communities have enjoyed our high-quality water purified by conventional water treatment techniques. Growing communities near our facilities are also being served with our water through WE Energies Water Services. The Commission meets monthly to discuss operations and to review water quality.

### Plant Optimization

Since the 1993 Cryptosporidium outbreak in Milwaukee that affected over 400,000 people, the US EPA (United States Environmental Protection Agency) has focused on improving the regulations involved with pathogen removal and the inactivation of Cryptosporidium in the United States. While the US EPA was in the process of developing new regulations, the North Shore Water Commission was proactively responding to the outbreak by improving our own water treatment operations.

In 1994 the North Shore Water Commission conducted a treatment plant optimization study to improve existing operations. The optimization study led to improved mixing of the chemical coagulants, which resulted in more effective removal of particulate material. The improvements resulted in an even stronger primary barrier against Cryptosporidium and reduced the energy requirements in plant processes.

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## Focused Research

The North Shore Water Commission also conducted research to investigate new technologies for the removal and inactivation of Cryptosporidium. The Commission was involved in the pilot testing of the following new technologies.

- Ozone Disinfection
- Membrane Filtration
- Ultraviolet Light (UV) Disinfection

While all three technologies proved to be effective in the removal and inactivation of Cryptosporidium, ozone had difficulties with cold-water temperatures and membranes proved not to be cost-effective. In pilot testing conducted in 1998 the UV technology proved to be very effective at inactivating Cryptosporidium. As part of a collaborative effort funded by the American Water Works Association Research Foundation and the Energy Center of Wisconsin, the North Shore Water Commission evaluated two UV disinfection systems. The study showed UV disinfection was a feasible and a cost-effective technology for Cryptosporidium inactivation. In addition, UV disinfection may allow for a reduction in the amount of chlorine needed for disinfection. The study has educated State and Federal regulators on the effectiveness of UV, and has provided useful pilot data needed to successfully implement UV as a technology to meet upcoming US EPA regulations.

## UV Disinfection

In 2004, the North Shore Water Commission along with all of its member communities approved the installation of UV disinfection. The installation is underway and is expected to be completed by August of 2006. Coupled with our optimized water treatment process, our treatment process will be recognized by the Wisconsin Department of Natural Resources (WDNR) as achieving 6-log removal/inactivation of cryptosporidium.

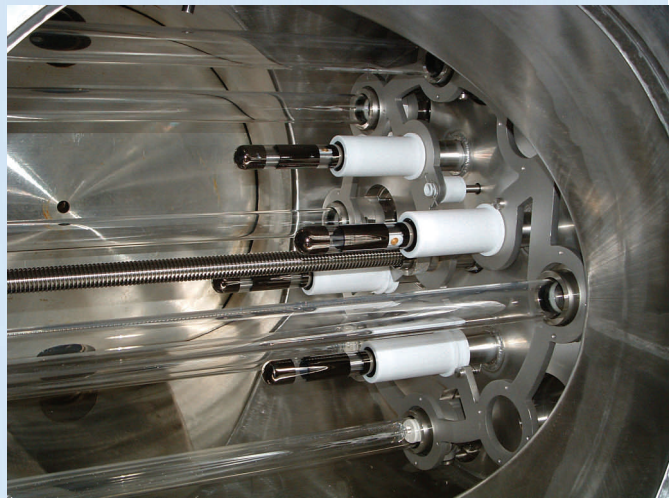
**UV Disinfection Coming later in 2006!**

## Cryptosporidium Monitoring

*We consistently monitor the water supply for various constituents. Since 1993, we have tested raw lake water and finished drinking water for Cryptosporidium and have never found Cryptosporidium in the finished drinking water. In 2005, no Cryptosporidium was detected in the finished drinking water. It is important for you to know that Cryptosporidium may cause serious illness in immunocompromised individuals, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, and people with HIV/AIDS or other immune system disorders. These individuals should seek advice from their health care providers.*

## Source Water Assessment Summary

The North Shore Water Commission purifies water from Lake Michigan. A recent evaluation by the Wisconsin Department of Natural Resources (WDNR) indicates our source water quality is greatly susceptible to pollution and contaminants. Preserving the water quality of Lake Michigan is essential to maintaining your drinking water quality. For more information regarding conservation, visit the WDNR website at <http://www.dnr.state.wi.us/>.



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## Educational Information

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 from 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 can be naturally-occurring or result from urban stormwater 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 stormwater 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, urban stormwater runoff and septic systems.
- *Radioactive contaminants*, which can be naturally occurring or be the result of oil and gas production and mining activities.

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



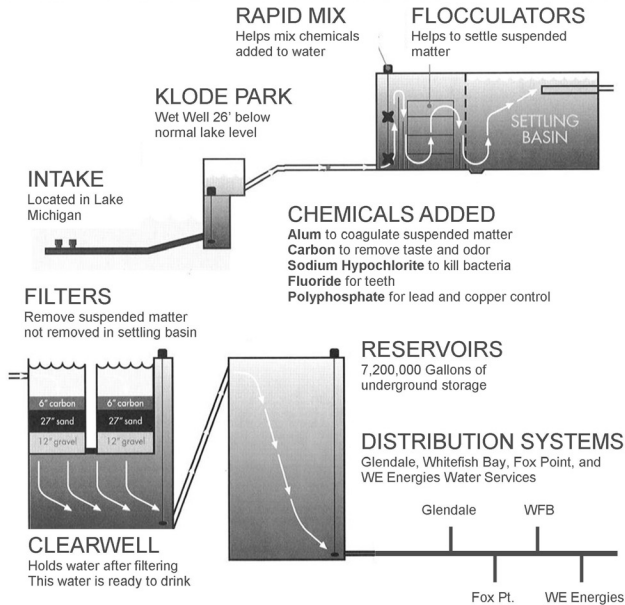
## Treatment Process

Our treatment process starts at our intake in Lake Michigan. Water is pumped from the lake into our state-of-the-art surface water treatment plant. The first stage of purification is to remove dirt and other suspended matter by using a coagulant called alum; this treatment chemical causes smaller particles to form a larger mass that is too heavy to stay in water. Depending on the quality of our source water, additional chemicals such as activated carbon may be added at this point to aid in the removal of taste and odors. At the end of this first stage, a majority of suspended matter is settled out in the sedimentation basins. Next, the water is purified by rapid sand filtration and is disinfected with sodium hypochlorite. To control lead and copper leaching in residential plumbing, a corrosion inhibitor is added at this time. Fluoride is also added to the water to prevent excessive tooth decay in children. Safe drinking water is stored in our reservoirs until it is pumped into the distribution systems.

## Conventional Water Treatment

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## The Water Filtration Process



## Abbreviations and Definitions

*Not Applicable (NA)* – Not applicable.

*Not Detected (ND)* – laboratory analysis indicates that the constituent is not present.

*Parts per million (ppm) or Milligrams per liter (mg/l)* – one part per million corresponds to one minute in two years or a single penny in \$10,000.

*Parts per billion (ppb) or Micrograms per liter* – one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

*Parts per trillion (ppt) or Nanograms per liter (nanograms/l)* – one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

*Parts per quadrillion (ppq) or Picograms per liter (picograms/l)* – one part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in \$10,000,000,000,000.

*Picocuries per liter (pCi/L)* – picocuries per liter is a measure of the radioactivity in water.

*Millirems per year (mrem/yr)* – measure of radiation absorbed by the body.

*Million Fibers per Liter (MFL)* – million fibers per liter is a measure of the presence of asbestos fibers that are longer than 10 micrometers.

*Nephelometric Turbidity Unit (NTU)* –nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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

*Treatment Technique (TT)* – A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

*Maximum Contaminant Level (MCL)* – The “Maximum Allowed” (MCL) is 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 (MCLG)* – The “Goal” (MCLG) is 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.

## Monitoring

This table displays the number of contaminants that were required to be tested in the last five years. This report may contain up to five years worth of water quality results. If tested annually, or more frequently, the results from the most recent year are shown on this report. If testing is done less frequently, the results are shown from the most recent testing event.

Contaminant Group	# Tested
Disinfection Byproducts	1
Inorganic Contaminants	16
Microbiological Contaminants	1
Radioactive Contaminants	1
Synthetic Organic Contaminants	27
Unregulated Contaminants	33
Volatile Organic Contaminants	21



**We Meet All Requirements!**

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## Test Results

Parameter & (Units)	Compliance Status	Level Found (Range)	MCL	MCLG	Typical Source of Contamination
<b>Microbiological</b>					
Combined Filter Effluent Turbidity (NTU)	☺	0.05--Ave (0.03 - 0.15)	0.3-- 95% of the time	NA	Soil Runoff
<b>Volatile Organic Contaminants</b>					
TTHM (ppb)	☺	21.5--Ave (14.0 - 26.0)	80	0	By-product of drinking water chlorination
<b>Inorganic Contaminants</b>					
Barium (ppm)	☺	0.017	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Copper (ppm)* 6/13/2003	☺	0.058--90th Percentile (ND - 0.233)	AL=1.3	13	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Fluoride (ppm)	☺	1.0--Ave (.6 - 1.2)	4	4	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Lead (ppb)* 6/13/2003	☺	14--90th Percentile (ND - 29)	AL = 15	0	Corrosion of household plumbing systems; Erosion of natural deposits
Nickel (ppb)	☺	0.72	100	NA	Nickel occurs naturally in soils, ground water and surface waters and is often used in electroplating, stainless steel and alloy products.
Nitrate (NO3-N) (ppm)	☺	0.31	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Sodium (ppm)		8.5	NA	NA	NA
<b>Radioactive Contaminants</b>					
Gross Alpha Particle Activity (pCi/L)* 2/27/2002	☺	0.8--Ave (0.0 - 0.8)	15	0	Erosion of natural deposits
<b>Disinfection By-products</b>					
HAA5 (ppb)	☺	12.2--Ave (8.6 - 16.0)	60	60	By-product of drinking water chlorination
<b>Unregulated Contaminants</b>					
Bromodichloromethane (ppb)	☺	6.58--Ave (3.6 - 8.6)	NA	NA	NA
Bromoform	☺	0.41--Ave (0.30 - 0.66)	NA	NA	NA
Chloroform (ppb)	☺	7.94--Ave (2.5 - 13.)	NA	NA	NA
Dibromochloromethane (ppb)	☺	4.04--Ave (2.8 - 5.4)	NA	NA	NA
Sulfate (ppm)	☺	27	NA	NA	NA
<b>Other Parameters</b>					
Alkalinity (ppm)	☺	114	NA	NA	NA
Hardness (ppm)	☺	142	NA	NA	NA
pH (pH units)	☺	7.82	NA	NA	NA

\* Latest test result. Monitoring requirements for those contaminants are less frequent than once per year.

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## Lead

Although the level of lead in the water is acceptable by WDNR regulations, we would like to give you more information about the dangers of lead. Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from Safe Drinking Water Hotline (800-426-4791).

## Results

We are proud that your drinking water meets or exceeds all federal and state requirements. We have learned through our monitoring and testing that some contaminants have been detected; however, the EPA (Environmental Protection Agency) has determined that your water IS SAFE at these levels. All sources of drinking water are subject to potential contamination by contaminants that are naturally occurring or man made. Those contaminants can be microbes, organic or inorganic chemicals, or radioactive materials. All 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 the water poses a health risk. Maximum Contaminant Levels are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect. More information about contaminants and potential health effects can be obtained by calling EPA's Safe Drinking Water Hotline.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people 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 from their health care providers about drinking water. EPA/CDC (Center for Disease Control) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

In order to maintain a safe and dependable water supply, we sometimes need to make improvements that will benefit all of our customers. These improvements are sometimes reflected as rate structure adjustments. Thank you for understanding. We ask all our customers to help us protect our water sources— safe water is the heart of our community, our way of life and our children's future.

We work around the clock to provide top quality water to every home. Thank you for allowing us to continue providing your family with clean, safe, quality water this year.

## Questions or Comments

Please call Roger Johnson at 963-0160 or e-mail us at [Info@northshorewc.com](mailto:Info@northshorewc.com). We want our valued customers to be informed about their water utility. Please attend any of our regularly scheduled meetings; dates and times for scheduled meetings are posted at the Glendale City Hall, Fox Point Village Hall, and Whitefish Bay Village Hall. We also have additional information available at our office regarding our treatment process and source water protection plan.

# NORTH SHORE WATER COMMISSION

## More Information about the North Shore Water Commission

400 W. Bender Road, Glendale, WI 53217

### Organization and Structure

The North Shore Water Commission consists of three appointed Commissioners and three appointed Alternates with equal representation from Glendale, Whitefish Bay, and Fox Point. Each member is appointed by his/her respective municipality for a term of one year. Annually, the responsibilities of Chairperson, Secretary and Member are rotated giving each community equal share of authority.

Under normal circumstances, the Commission convenes monthly and reviews the operation and maintenance of the water treatment facility as well as water quality. After discussion, the Commission votes on proposed action, spending and budgets. Capital improvements, such as the UV disinfection upgrade, must be unanimously approved and financed by the member communities. Furthermore, the distribution, metering and billing of all water used is the responsibility of each member community.

### Management

**Roger C. Johnson**  
Manager

*info@northshorewc.com, (414) 963-0160*

Roger C. Johnson has been managing the North Shore Water Commission since 1995. With over 40 years of water treatment experience, Mr. Johnson oversees daily operations and is responsible for your water quality.



### Current Members of the North Shore Water Commission

**Michael West**  
Commissioner, Chairperson  
*(414) 352-2712*

Mike West is the Village President of Fox Point and has served as Commissioner for over 6 years.

**Susan Robertson, Alternate**  
*srobertson@vil.fox-point.wi.us, (414) 351-8900*  
Susan Robertson is the Village Manager of Fox Point and has served as Alternate for over 10 years.

**Richard Maslowski**  
Commissioner, Secretary  
*cityhall@glendale-wi.org, (414) 228-1705*

Richard Maslowski is the City Administrator of Glendale and has served as Commissioner for over 26 years.

**William Huegel, Alternate**  
*bihi222@sbcglobal.net, (414) 352-8020*  
William Huegel is the Alderman of 3rd District and has served as Alternate for over 15 years.

**Mary Jo Lange**  
Commissioner, Member  
*engineer@wfbvillage.org, (414) 962-6690*

Mary Jo Lange is the Village Engineer for Whitefish Bay and has served as Commissioner for over 3 years.

**Anthony Busalacchi, Alternate**  
*(414) 963-9162*  
Anthony Busalacchi is on the Whitefish Bay Village Board as Trustee and has served as Alternate for over 2 years.