2008 Water Quality Report

City of New Brighton • Published June 2009

Your Drinking Water Meets Federal and State Standards

The City of New Brighton's goal is to provide you with high quality, reliable drinking water that surpasses every federal and state requirement. The United States Environmental Protection Agency and the Minnesota Department of Health have identified many chemicals and other substances that may pose a risk to humans. When a contaminant is thought to pose a risk, these agencies set limits for safe human consumption.

This special newsletter contains the City's annual water quality report, which includes complete information on the monitoring done on New Brighton's drinking water during 2008. Please review the report, and if you have questions, contact Scott Boller, Water Supervisor, (651) 638-2119, scott.boller@newbrightonmn.gov. You can also view water topics on the City of New Brighton website under City Services, Drinking Water at www.newbrightonmn.gov.

Water Quality Report for 2008

The federal government's Safe Drinking Water Act of 1996 mandates that all public water supply systems send water quality reports to each of their customers annually. The purpose of this report is to advance consumer's understanding of drinking water and to heighten awareness of the need to protect precious water sources. This report summarizes results of monitoring done on New Brighton drinking water from January 1 to December 31, 2008. This newsletter also contains information about radium detected in the City's municipal water in 2004, along with other water topics.

Source of Water

The City of New Brighton provides safe drinking water to its residents and businesses by pumping water from the following groundwater sources: the Prairie Du Chien, Jordan, and Mount Simon-Hinckley aquifers. The Prairie Du Chien and Jordan aquifers are vast underground veins of water that supply the majority of New Brighton's water, 98% in 2008. The City currently has 11 wells ranging from 294 to 915 feet deep.

New Brighton's water provided to customers meets all of the Environmental Protection Agency's health and aesthetic standards for safe drinking water. The City's wells and treatment plants meet all construction standards and do not present a pathway for contamination to enter the water supply. The City's operating procedures include daily monitoring of treatment plants and frequent water testing. Our state-of-the-art Granular Activated Carbon absorption process at two of our water treatment plants removes more impurities than most other treatment plants in the country. If you wish to obtain the entire water source assessment regarding your drinking water, please call (651) 201-4700 or 1-800-818-9318 (and press 5) during regular business hours. Also, you can view it online at www.health.state.mn.us/divs/eh/water/swp/swa.

Water Quality Monitoring

The City tests the water on a daily basis. Outside testing laboratories and the State of Minnesota conduct additional testing on monthly and quarterly schedules. Daily readings of flow and chemical usage verify that proper ratios of fluoride and chlorine are used. More than 1,500 individual tests are performed annually to ensure that water quality remains at the highest level.

Monitoring Results

The results contained in the following table indicate a violation of the federal standard. Some other contaminants were detected in trace amounts that were always below the maximum allowed in drinking water. Table 1 on page 2 shows the contaminants that were detected in trace amounts in 2008. (Some contaminants are sampled less frequently than once a year; as a result not all contaminants were sampled in 2008. If any of these contaminants were detected the last time they were sampled for, they are included in the table along with the date that the detection occurred).

Contact Scott Boller, Water Supervisor, (651) 638-2119, scott.boller@newbrightonmn.gov if you have questions about the City of New Brighton drinking water or would like information about opportunities for public participation in decisions that may affect the quality of the water.

National Primary Drinking Water Regulations

Monitoring for unregulated contaminants as required by U.S. Environmental Protection Agency rules (40 CFR 141.40) was conducted in 2008. Results of the unregulated contaminant monitoring are available upon request from Cindy Swanson, Minnesota Department of Health, at 651/201-4656.

Compliance with National Primary Drinking Water Regulations

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, the U. S. Environmental Protection Agency (EPA) prescribes regulations which 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 must provide the same protection for public health.

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 1-800-426-4791.

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/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hotline at 1-800-426-4791.

Table 1

Substances Detected in Trace Amounts in New Brighton Water

Contaminant (units)	MCLG	MCL	Level Found		Typical Source of Contaminant
			Range (2008)	Average/Result*	
Fluoride (ppm)	4	4	N/A	1.05	State of Minnesota requires all municipal water systems to add fluoride to the drinking water to promote strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories.
TTHM (Total trihalomethanes) (ppb)	0	80	N/A	0.7	By-product of drinking water disinfection.
Xylenes (ppm)	10	10	N/A	.001	Discharge from petroleum factories; Discharge from chemical factories.

Lead and Copper Testing

This is a specialized testing program to identify the potential for a homeowner's internal plumbing to impact their drinking water. New Brighton's drinking water does not contain lead or copper; however, these substances might be detected in household drinking water as a result of an installed plumbing system. Common sources of lead and copper are lead solder and copper pipe fittings. Lead in solder was banned after 1985. The City tests for lead and copper under Department of Health guidelines every three years by collecting water samples from selected households in the City.

Table 2a shows the results of tests performed during 2008. **No contaminants were detected at levels that violated federal drinking water standards.**

Table 2a

Contaminant (units)	MCLG	AL	90% Level	# sites over AL	Typical Source of Contaminant
Copper (ppm) (07/24/2007)	N/A	1.3	.43	0 out of 30	Corrosion of household plumbing systems; Erosion of natural deposits.
Lead (ppb) (07/24/07)	N/A	15	3	0 out of 30	Corrosion of household plumbing systems; Erosion of natural deposits.

If present, infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of New Brighton 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 at 1-800-426-4791or at http://www.epa.gov/safewater/lead.

Some contaminants do not have Maximum Contaminant Levels established for them. These unregulated contaminants are assessed using state standards known as health risk limits to determine if they pose a threat to human health. If unacceptable levels of an unregulated contaminant are found, the response is the same as if an MCL has been exceeded; the water system must inform its customers and take other corrective actions. In Table 2b are the unregulated contaminants that were detected.

Table 2b

Contaminant (units)	Level Found		Typical Source of Contaminant
	Range (2007)	Average/Result	
Sodium (ppm) (08/28/2006)	N/A	15	Erosion of natural deposits.
Sulfate (ppm) (08/28/2006)	N/A	2.82	Erosion of natural deposits.

Key to abbreviations:

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.

MCL: Maximum Contaminant Level: 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.

MRDL: Maximum Residual Disinfectant Level.

MRDLG: Maximum Residual Disinfectant Level Goal.

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

90th Percentile Level: This is the value obtained after disregarding 10 percent of the samples taken that had the highest levels. (For example, in a situation in which 10 samples were taken, the 90th percentile level is determined by disregarding the highest result, which represents 10 percent of the samples.) Note: In situations in which only 5 samples are taken, the average of the two with the highest levels is taken to determine the 90th percentile level.

pCi/l: PicoCuries per liter (a measure of radioactivity).

ppb: Parts per billion, which can also be expressed as micrograms per liter (µg/l).

ppm: Parts per million, which can also be expressed as milligrams per liter (mg/l).

nd: No Detection.

N/A: Not Applicable (does not apply).

Radium and Radon in Drinking Water

Radium occurs naturally in our environment. It is a natural component of underground rock and soil, and it can work its way into groundwater. Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.

In 2004, the Minnesota Department of Health (MDH) notified the City that four of our 11 wells exceeded the reporting level of 5.4 pCi/l for combined radium. City staff put a plan together with MDH and the City Council to rehabilitate the existing iron filters to remove the radium. At present time, all four filters have been modified and have passed radium testing. New Brighton has been very pro-active in working with MDH to resolve this problem, with very good results. More information on radium is available on the MDH website: http://www.health.state.mn.us/divs/eh/water/com/fs/radium.html

Radon in Drinking Water

Radon is a radioactive gas which is naturally occurring in some groundwater. It poses a lung cancer risk when gas is released from water into air (as occurs during showering, bathing, or washing dishes or clothes) and a stomach cancer risk when it is ingested. Because radon in indoor air poses a much greater health risk than radon in drinking water, an Alternative Maximum Contaminant Level (AMCL) of 4,000 picoCuries per liter may apply in states that have adopted an Indoor Air Program, which compels citizens, homeowners, schools, and communities to reduce the radon threat from indoor air. For states without such a program, the Maximum Contaminant Level (MCL) of 300 pCi/l may apply. Minnesota plans to adopt an Indoor Air Program once the Radon Rule is finalized.

*This is the value used to determine compliance with federal standards. It sometimes is the highest value detected and sometimes is an average of all the detected values. If it is an average, it may contain sampling results from the previous year.

Table 3

Contaminant (units)	MCLG	MCL	Level Found		Typical Source of Contaminant
			Range (2008)	Average/Result*	
Combined Radium (pCi/l)	0	5.4	nd-2.8	2.8 *	Erosion of natural deposits.
Radon (pCi/l) (08/06/2007)	-	-	N/A	62	Erosion of natural deposits.
Alpha Emitters (pCi/L)	0	15.4	Nd-6	6	Erosion of natural deposits.

* During the year 2008, we had an ongoing violation for Combined Radium at Well #12 / Treatment Plant #5; however, due to the installation of treatment, results collected at the treatment plants in 2008 were below the MCL. **Our system has returned to compliance for Combined Radium as of September 25, 2008. Prior to September 25, 2008 Well #12 / Treatment Plant #5 did not supply any water to our distribution system.**

Chlorine Testing

Chlorine is added to protect the system from biological growth or bacteria. Chlorine samples are taken from different areas of the City and tested to verify that the disinfection properties are carried throughout the entire system to the ends of the lines.

Table 4

Contaminant (units)	MRDLG	MRDL	****	*****	Typical Source of Contaminant
Chlorine (ppm)	4	4	.2 -.4	.3	Water additive used to control microbes.

****Highest and Lowest Monthly Average. *****Highest Quarterly Average.

Anatomy of a Water Main Break

A Water Main Break occurs when a distribution pipe buried in the ground that cracks and starts leaking. They generally occur during the winter months. We have had as many as 34 in one season and have had many days with 3 breaks at the same time.

The break is normally spotted by a resident or police officer on patrol when they notice water running down the street.

The City dispatches someone from the public works crew immediately to investigate and start the repair process. This is important, because the forces of water can do damage to the surrounding area.

First, we get a general location of where the break is located simply by observing where the water is coming from. Then we contract with a company that comes out and electronically locates the break, usually within a foot of the actual crack. In the not so distant past, we had to locate the exact location of the break by drilling a hole directly on top of the main and installing a probe rod to listen for the break. At times this would require drilling a dozen or so holes. This was very time consuming.

After the location of the break is confirmed, we call Gopher State One Call to get all the underground utilities such as natural gas, electricity, phone and cable located.

We warn the residents and businesses in the affected area that the water will be shut off temporarily, usually 4 to 8 hours. Next, isolate the section of pipe to be repaired by closing valves in the distribution system.

We use a pavement breaker or Rapid Ram as we call it on the back of a tractor (it is like a big jack hammer) to get through the asphalt or concrete and then continue through the frost which can be 5-feet thick. This process is time consuming and requires an operator with skill and patience.

After we make our way through the frost we dig carefully until we get to the water main and expose the cracked pipe. This is difficult when there are other utilities in the dig site.

After the broken main is exposed we lower a safety box into the hole first so if we have a cave in, no one is hurt or killed. Then we enter the box and start the repair. In the case of a crack in the radius of the pipe, we clean the pipe and install a repair sleeve. It is like a big Band-Aid. It is made from stainless steel with a rubber inner lining and bolts together. They are very reliable and will normally last the life of the pipe. If the crack is along the length of pipe, we cut out a section of pipe and install a new section using mechanical joints. This is a more time consuming repair. All of this can be complicated by weather, traffic, valves that leak allowing water to flood the hole we are working in, along with many other variables. Also, consideration has to be made concerning critical water users such as medical facilities, nursing homes and restaurants. No one likes to be without water, but some really suffer when it's shut off, even for a few hours.

After the repair is made we fill the hole and compact the layers as we go. We then make a temporary repair until the permanent repair can be made in the spring.

To try to bring down the number of breaks in the future, cast iron water mains are being replaced with ductile iron or plastic pipes.

When you approach the scene of a water main break repair, please drive slowly as the area can be very dangerous and if possible, find another route to your destination.

Typical water main repair, winter of 2008.

Learn more about water in New Brighton

Q: How much water does New Brighton use?

A: In 2007, residents and businesses in New Brighton used one billion gallons of water. This works out to an average of 2.75 million gallons of water per day. A typical New Brighton household consumes an average of 22,000 gallons of water each quarter of the year. Water use is lower than the average during the winter months and higher in the summer, primarily due to lawn watering. New Brighton has the capacity to pump over 9 million gallons per day, if needed.

Q: Where can I get my water tested?

A: The City tests the water quality and results are published annually in this report. If you desire further testing, please call a private testing laboratory. Private laboratories are located in the Yellow Pages under "water analysis" or "laboratories-analytical." In order to test water, you need to know what you want to test for. The City and Minnesota Department of Health conduct all the water testing required by the Safe Drinking Water Act to maintain safe drinking water in our City.

Q: How much iron is in New Brighton's water:

A: New Brighton's water is relatively low in iron content. It is less than .01ppm, considered "no detection".

Q: Is bottled water really safer than tap water?

A: Overall, there is no reason to believe that bottled water is any safer than tap water from a regulated public water supply. These drinking water sources are normally safe and of high quality.

Q: Where does bottled water come from?

A: Bottled water comes from a variety of sources, including many of the same sources from which tap water originates. Sometimes the water you buy in a bottle is simply tap water from a municipal water system that has been enhanced in some way. Other sources of bottled water include springs, wells, and surface waters.

Q: Are the plastic bottles safe to reuse?

A: An issue of concern is the reuse of the bottles. Reused bottles may be contaminated with bacteria and other disease causing Organisms. Reusing the bottles may expose people to unhealthy microorganisms, especially if the bottles are not washed appropriately after each use.

Q: Should I buy bottled water?

A: Remember that US bottled water is less regulated than municipal water and bottled water costs up to a 1000 times more than New Brighton water.

Q: Can New Brighton supply water during a power outage?

A: Yes. Water stored in water towers flows by gravity and does not require power. For the extended power outages New Brighton has its own power generators that can run the wells to pump 2 million gallons per day, enough for a limited temporary supply. New Brighton also has water interconnections with neighboring cities which could be opened to receive water during an emergency.

Q: Is there fluoride in my water?

A: Yes, there is fluoride in the water. The groundwater naturally contains a small amount of fluoride and the Water Department adds more fluoride to bring the total amount of fluoride in the water to the Department of Health standards of 1.0ppm to 1.5ppm. There is 1.2ppm of fluoride in New Brighton's water.

Q: Should I install a water softener in my home?

A: New Brighton has very hard water that may cause scale buildup on your fixtures, or spots on your dishes. The white scale of deposits is calcium and magnesium that build up over time. If you are bothered by this a water softener should help. Soft water rinses off better, and you generally use less soap for your dishes and laundry.

Q: Should I install a water filter in my home? (home treatment?)

A: This is a personal choice. A water filter is not required for the municipal water in New Brighton to meet drinking water standards. Most filters will remove the large chlorine ions, which is in the water to kill the harmful bacteria and fluoride ions, which strengthen teeth. If the water taste is not to your liking, then you may want to consider a home treatment unit.

Consumers who choose to purchase a home water treatment unit should carefully read its product information to understand what they are buying, whether it is a better taste or a certain method of treatment. Be certain to follow the manufacturer's instructions for operation and maintenance, especially changing the filter on a regular basis.

Q: Why do we store water in water towers?

When you turn on your faucet water flows out because the water in the pipes is under pressure and is pushed out. The water in the water tower sit on top of the water below it and the weight of the water above provides your house with water pressure. The higher the water is above you, the more pressure you have. Household water pressure ranges from 40 psi - 80 psi depending on the house elevation compared to the water tower.

Excess storage means water is available when we need it, like in the mornings and on weekends. It also means that large amounts of water is available for emergencies like fighting a fire. New Brighton's four storage tanks can hold 2.75 million gallons of water.

Earth's Water

- Water is the most common substance found on earth. 97% of it is in the oceans.
- In a 100-year period, a water molecule spends 98 years in the ocean, 20 months as ice, about 2 weeks in lakes and rivers, and less than a week in the atmosphere.
- Each day the sun evaporates a trillion tons of water.
- Water is the only substance on earth naturally found in the three true element forms: solid, liquid, and gas.
- The first water pipes made in the U.S. were fire-charred, bored-out logs.
- There are over 1 million miles of water pipelines and aqua ducts in the United States and Canada - enough to circle the globe 40 times.
- There are over 59,000 community public water systems in the U.S.
- Community water systems process over 35 billion gallons of water daily.
- It takes 1,851 gallons of water to refine one barrel of crude oil.
- It takes 1,500 gallons of water to process one barrel of beer.
- It takes 120 gallons of water to produce one egg.
- Over 42,000 gallons of water (enough to fill a 30 x 50 foot swimming pool) are needed to grow and prepare the food for a typical Thanksgiving meal for eight.
- A single birch tree will give off 70 gallons of water per day in evaporation.
- An acre of corn will give off 4,000 gallons of water per day in evaporation.

History of New Brighton Water System

The New Brighton water system has undergone major changes since the discovery of volatile organic compounds (VOCs) in the City water wells in July of 1981. Trichloroethylene (TCE), a common degreasing solvent and suspected carcinogen, was found in the wells at levels ranging from a few parts per billion to over two hundred parts per billion. The well water also contained lesser quantities of trichloroethane, dichloroethane, and dichloroethylene. The City immediately responded by changing the order of usage of the wells to use the lowest contaminated wells first. In addition, an odd/even lawn sprinkling procedure was put into effect to control water demand.

The State Board of Health notified the City that the chemical contamination posed a long-term chronic health problem and directed the City to replace the contaminated supply. Replacement options investigated by the City included purchasing water from a neighboring city, installation of new clean wells, and treatment of the existing supply. The City's initial decision was to construct new wells in the deeper Mount Simon/Hinckley aquifer.

By 1987, the source of the contamination had been identified as the Twin Cities Army Ammunition Plant (TCAAP) located in Arden Hills about 2.5 miles northeast of the City water wells. The Army reimbursed the City for the cost of the Mount Simon/Hinckley wells and iron removal plants and paid for the design, construction, operation and maintenance of a new treatment plant to treat water from the old contaminated Wells #3, #4, #5, and #6. The litigation settlement agreement between the City and the Army required the City to utilize the treated water for 80 percent of total annual water usage for aquifer cleanup purposes.

The water treatment plant was put into service in May of 1990. The treatment process utilizes granular activated carbon in down-flow pressure contactors to remove the contaminants. The treatment plant proved to be a safe and reliable water supply for the City and an important groundwater cleanup facility for the Army. This practical relationship between water supply and groundwater cleanup resulted in a cooperative effort by the Army and the City for the final remediation plan for the contaminated Prairie Du Chein/Jordan aquifer.

In 1992, Well #13, a second smaller treatment plant, and a 20 inch diameter water system interconnection to the City of Fridley were completed.

In 1994, iron and manganese pressure filtration was added to the first Treatment Plant. In 1995 and 1996, two additional new Wells, #14 and #15, were installed to optimize contaminant removal and plume containment. The interconnection to the City of Fridley was built because the daily pumpage requirements for containment were in excess of the City of New Brighton's average day water demand. The iron and manganese filtration was added because the best wells for remediation contain levels of iron and manganese that could not be satisfactorily controlled by sequestration.

The large water treatment plant is referred to as the Permanent Granular Activated Carbon Water Treatment Facility, or by the acronym PGACWTF.

Safe and Pleasing Water is Goal

The City of New Brighton's goal is to provide both safe and aesthetically pleasing water. Odor and taste changes often originate from the water's source. High mineral levels are common in Minnesota groundwater, and minerals affect the taste of water. Iron and manganese produce a metallic taste. Manganese can also pass on a bitter flavor and can be the cause of an oily-looking film seen on brewed coffee. Calcium and magnesium, which are responsible for water being "hard," actually can make water taste better. Generally, water is harder where calcium and magnesium rich limestone rocks are present. New Brighton pumps some of its water from aquifers in dolomite/limestone rock formation.

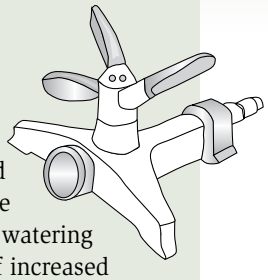
Odor and taste problems can originate in your own home. Water heaters are often a source of offensive odors in water, especially if you are away from home for long periods. Flushing or draining the water heater regularly can alleviate this problem.

If your drinking water does not taste or smell the way you would like (i.e., like

chlorine), fill a pitcher with tap water and let it stand in your refrigerator for a few hours prior to drinking the water. This will allow odors to dissipate and better tasting water should result. Change the water in the pitcher every couple of days.

New Brighton monitors and maintains all utility systems to ensure that safe and pleasing water is delivered to all residents in the community.

Sprinkling Policy



Summer water demand is high compared to the winter months. Lawn watering is the primary cause of increased water demand during the summer. The City of New Brighton has an on-going lawn sprinkling policy to ensure there will be adequate water available at all times plus reserves in storage for fire protection purposes.

New Brighton's lawn sprinkling policy states that even numbered addresses may sprinkle on even numbered calendar dates. Odd numbered addresses may sprinkle on odd numbered calendar dates. Newly seeded or sodded lawns may be sprinkled every day for a period not to exceed three weeks. The City asks that you avoid lawn sprinkling during the peak demand hours of 4:00 pm to 10:00 pm on hot, dry summer days. Violation of these policies is punishable by a fine of $40.

city of NEW BRIGHTON

the city that works for you

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