



Winnipeg's Water

QUALITY REPORT 2004



This report

- describes the actions that we take to ensure safe, high-quality drinking water
- provides information about the quality of our drinking water
- outlines our plan for a water treatment plant that will make our water even safer to drink, and will also improve the appearance, taste and smell of our water

Where does our water come from?

We get our water from Shoal Lake, on the border between Manitoba and Ontario. Shoal Lake was chosen in 1912 because it was the best water supply for our city, and that is still true today. Water flows from Shoal Lake to Winnipeg by gravity through a 160 kilometre long aqueduct (concrete pipe). The water is stored in Deacon Reservoir, a large reservoir that can hold 8.8 billion litres, enough water to supply Winnipeg for about 20 days. Water passes from Deacon Reservoir to three smaller reservoirs and pumping stations in different areas of the city. Each day, we deliver an average of 225 million litres of water to approximately 270,000 Winnipeg homes and businesses.

Is drinking water quality regulated?

Yes. Manitoba Health and Manitoba Water Stewardship regulate the quality of our drinking water using *Guidelines for Canadian Drinking Water Quality*. These guidelines, published by Health Canada, recommend limits for substances and conditions affecting drinking water quality. A panel of experts, including a representative from our province, keeps these guidelines up-to-date.

Since we began using Shoal Lake as our water supply in 1919, we have not had an outbreak of waterborne disease.



Shoal Lake

What steps do we take to keep our water safe?

- We work with the First Nation communities in the Shoal Lake area, the federal government, and the provincial governments of Manitoba and Ontario to make sure that development in the area does not affect water quality.
- We rigorously test the water. Laboratory staff use approved test methods and have backgrounds in science, such as chemistry and engineering.
- We disinfect the water with chlorine to kill harmful bacteria, such as *E. coli* and other micro-organisms. Chlorine is the most widely used drinking water disinfectant in North America, and has been used for more than a hundred years. We add chlorine at three different places before the water reaches your home or business – Shoal Lake, Deacon Reservoir, and the pumping station that serves your neighbourhood. We have to maintain an adequate chlorine level at every customer tap to ensure the safety of the water and to meet provincial regulations.

Is anything other than chlorine added to the water?

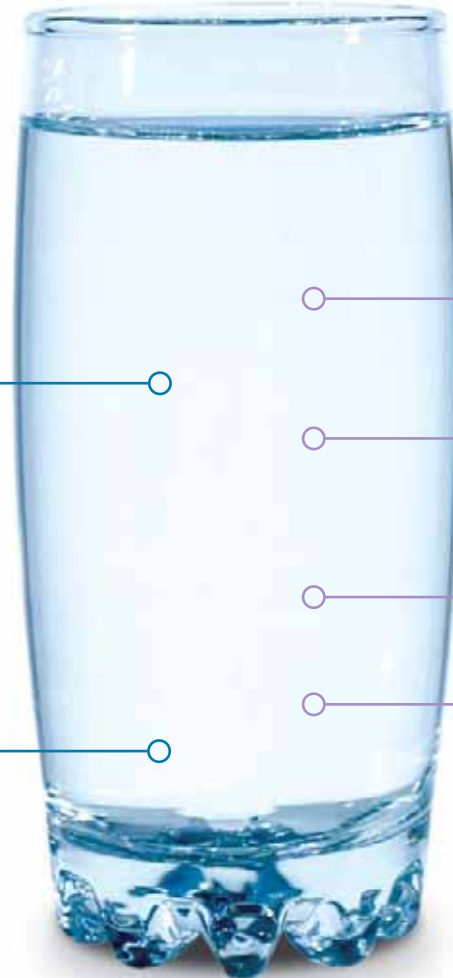
Yes. We add orthophosphate and fluoride to the water.

- We add orthophosphate to form a protective coating inside water pipes. This coating helps reduce corrosion that may add lead to tap water. Lead enters drinking water mainly as a result of the corrosion, or gradual wearing away, of plumbing materials that contain lead. These include service pipes made of lead that carry water from water mains to older buildings. We started this Lead Control Program in June 2000.

We add orthophosphate in small amounts in the form of food-grade phosphoric acid, which is found in many popular food products, such as soft drinks. You would need to drink more than 100 glasses of tap water to get the same amount of phosphoric acid that you would get in one glass of most colas.

- We add fluoride according to the Provincial Fluoridation Program guidelines at a level that helps prevent tooth decay and won't harm health.

Many health-related organizations, such as the Canadian Dental Association, the Canadian Medical Association, and the World Health Organization, recommend adding fluoride to drinking water to prevent tooth decay.



What tests do we do?

We test our water each step of the way, from Shoal Lake to the tap. Our testing program includes over 46 different types of tests at over 70 different places throughout the year. Because water quality is so important, we do more testing than the provincial government requires. Here are some water test facts:

- We test for chlorine at the 3 pumping stations, 24 hours a day, 365 days a year. We test the chlorine levels at other places, such as water mains, every week from spring to fall and every 2 weeks at other times.
- We take weekly samples for bacteria at over 60 places throughout the system and test them according to provincial regulations. Each year, we test more than 3,100 water samples for bacteria – this is 70% more than required. Test results for our water have always been within the acceptable range for bacteria. A nationally accredited laboratory conducts the bacteria tests.
- We test at least monthly for the microscopic parasites, *Cryptosporidium* (crip-toe-spor-ID-ee-um) and *Giardia* (GEE-ar-dee-ah), even though there is no requirement for this type of testing. These parasites are found in most rivers and lakes. A laboratory recognized internationally as expert in the study of parasites tests our water samples for *Cryptosporidium* and *Giardia*.
- We test tap water for lead from a sample group of houses every month to make sure that the Lead Control Program is effective.

We send all test results to the Province. We immediately report results that might affect public health to the Winnipeg Regional Health Authority's Medical Officer of Health.

For detailed information on our test results, see
www.winnipeg.ca/waterandwaste/water/testresults.stm



Do we meet the Canadian drinking water quality guidelines?

Yes, most of them. There are more than 80 guidelines for drinking water quality. Winnipeg supplies good quality drinking water, and usually meets these guidelines. However, we are not always able to meet the guidelines for turbidity, odour and trihalomethanes (TRY-hal-oh-meth-aynes).

City Council has approved a water treatment plant that will allow us to meet these guidelines.

Turbidity measures the clearness of the water. Although on average, Winnipeg's water meets the Canadian guideline, at some places the levels do not meet the guideline for short periods of time. High turbidity levels may give the water an unpleasant appearance, and can reduce the effectiveness of chlorine.

Odour is hard to measure in water. One person may notice a "smell"; another may not. The Canadian guideline for odour is "inoffensive". In the summer and fall, when there are higher amounts of algae in our water, some people find the smell of the water offensive. Although the smell may be unpleasant, you can still drink the water.

Trihalomethanes (THMs) are formed when chlorine reacts with naturally occurring organic matter (e.g., vegetation) in the water. Several research studies show a possible link between high levels of THMs and cancer. High levels of THMs may also have an effect on pregnancy. Although, so far, there is no conclusive evidence that THMs have a serious effect on our health, water suppliers are trying to keep THMs as low as possible. On average, the THM levels in Winnipeg's water are just slightly above the Canadian guideline, and we are taking steps to reduce them.

Drinking water is disinfected with chlorine to kill bacteria and viruses that can cause serious illness and death. The chlorination of drinking water has virtually eliminated typhoid fever, cholera, and many other waterborne diseases from the western world. Without adequate disinfection, the health risks from micro-organisms far outweigh the risks from THMs.

Some home water treatment devices can reduce THMs. Look for filters with either of the following certifications on their labels:

ANSI/NSF Standard 53 for reduction of trihalomethanes

ANSI/NSF Standard 53 for reduction of volatile organic compounds (VOCs)

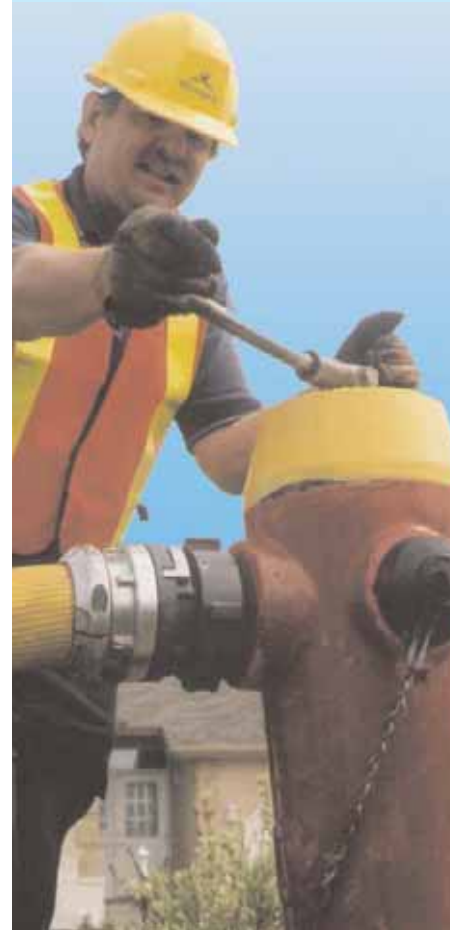
When will the water treatment plant be ready?

Our plans are as follows:

- By the end of 2004, we will install a \$9 million ultraviolet (UV) light system to protect our water against parasites such as *Cryptosporidium*. The water will pass through large pipes containing lamps resembling office fluorescent lights. UV treatment will not produce by-products and will not change the taste, odour or appearance of the water.
- By the end of 2005, we will use chloramine to disinfect the water. This will allow us to use less chlorine, helping us to reduce trihalomethanes in the water. Chloramine will also reduce the taste and odour of chlorine in tap water. Chloramine has been used safely for years, and many water utilities are switching to chloramine because of its benefits.
- By the end of 2007, the rest of the water treatment plant will be operating. There will be several stages of treatment, including ozonation and filtering.

Water rates will not be increased to pay for the water treatment plant.

What are we doing to prepare for water treatment?



Each year, from May to September, we clean water mains in selected areas of the city. We clean the mains by rapidly flushing water through them to scour sediment from inside the pipes. We will tell you in advance when we are going to clean the water mains in your neighbourhood.

There are about 2,400 kilometres of water mains in Winnipeg. It will take about five years to clean them all for the first time. We plan to have all the water mains cleaned by late 2007 to be ready to carry treated water from our new plant to your tap.

For more information visit www.winnipeg.ca/waterandwaste/water/maincleaning.stm

Frequently Asked Questions



Why can I taste or smell chlorine in my water?

Many people are able to taste or smell extremely low concentrations of chlorine in water and may be able to detect it in our water system. We have to maintain an adequate chlorine level at every customer tap to ensure the safety of the water and to meet regulations. If you live close to one of the places where we add chlorine, you will have more chlorine in your water than someone farther away. An easy way to get rid of the chlorine taste and smell is to fill a container of water and keep it in the fridge for drinking. Much of the chlorine will leave the water overnight. Cold water also tastes and smells better than water at room temperature. You will also save water since you don't have to run the tap until the water feels cold every time you want a drink.

Why does my water sometimes look dirty?

Usually when water looks dirty, it's because of a change in the direction or the rate of flow of the water in the pipes (e.g., due to a water main break). Sediment at the bottom of the pipes gets stirred up and causes dirty water. You should wait until the water is clear before you drink it, do the laundry or use the dishwasher.

Why is my water cloudy once in a while?

Water is cloudy when air gets in it and makes tiny bubbles. The bubbles are harmless and will disappear if you let the water sit in a glass for a few minutes. Cloudiness appears more often in the winter when the water is cold.

Why does my water sometimes smell or taste musty?

Algae produce substances that can give our water an unpleasant taste and smell, often described as musty. Algae are plants that live in bodies of water. Shoal Lake always contains various types of algae. Under certain conditions, usually in the summer, the algae can grow in abundance, in what is called an "algae bloom". At this time you may notice an unpleasant taste or smell. You can continue to use the water, and normally there is no need to take special precautions.

Frequently Asked Questions



Should I drink tap water if I have a special health concern?

You should ask your doctor this question if you have an extremely weak immune system.

The following people may have an extremely weak immune system:

- people with HIV/AIDS
- people with genetically weakened immune systems
- people with cancer
- transplant and other patients taking immunosuppressive drugs

The risk of *Cryptosporidium* in Winnipeg's water is very low. However, people with extremely weak immune systems should ask their doctor if they should take the precaution of boiling their drinking water vigorously for one minute. Boiling kills *Cryptosporidium*. The general public does not have to boil their drinking water.

Should I use hot tap water for drinking and preparing foods?

We recommend that you use only cold water for drinking and preparing foods. Hot tap water can contain higher levels of metals, such as copper, because metals in water pipes and plumbing fixtures dissolve more easily in hot water. If you need hot water for cooking and drinking, draw water from the cold tap and heat it.

Where can I get information on bottled water?

Bottled water is regulated differently from municipal drinking water. It is regulated as a food by the Canadian Food Inspection Agency. For information on bottled water, visit these web sites:

www.inspection.gc.ca/english/corpaffr/foodfacts/bottwate.shtml

www.hc-sc.gc.ca/food-aliment/mh-dm/mhe-dme/e_faqs_bottle_water_eng.html

If you have any questions about a specific bottled water product, call the Canadian Food Inspection Agency at **983-5492**.

A four-litre jug of tap water costs less than a penny!

Frequently Asked Questions



Where can I get information on water filters?

For information on water filters and other home water treatment devices, you can call the NSF International free hotline at **1-877-867-3435** or visit these web sites:

www.hc-sc.gc.ca/hecs-sesc/water/faq_dwtd.htm

www.nsf.org

If you want to buy a water treatment device, Health Canada strongly recommends that you buy one certified by ANSI/NSF. Many of the water treatment devices that are on the market can help improve the taste, odour and appearance of the water. Some products will reduce or remove things like *Cryptosporidium* and trihalomethanes. All certified treatment devices have the ANSI/NSF marking on the product stating which standard it meets.

Follow the manufacturer's instructions for taking care of your water treatment device. Replace filters when recommended. A filter that is not working properly could produce unsafe water.

Where can I get more detailed information on water quality?

Visit the Health Canada web site at www.hc-sc.gc.ca/waterquality

Where can I get more information on Winnipeg's water?

Contact our Customer Service Centre by phone at **986-5858** Monday to Friday, 8:30 a.m. to 4:30 p.m., or by email at wwd-customer-service@winnipeg.ca or visit www.winnipeg.ca/waterandwaste/water/quality.stm

We will inform Winnipeg residents immediately if there is ever a water quality problem that could affect public health.