Water Treatment: The Key to Great Water

Most large cities like Fargo use surface water as the community water source. Surface water sources can provide more water volume than localized groundwater wells, and surface water is a renewable resource when compared to groundwater. Surface water quality, however, is variable--highly dependent on weather and other environmental conditions. For this reason, more rigorous water treatment processes are required for surface water sources.

The City of Fargo maintains one of the most sophisticated water treatment facilities in the United States, and consumers should know that the treatment plant has undergone several security upgrades since the 9/11 attack. The chemical and physical processes used at the plant convert a source water with variable characteristics into a consistently safe, soft, and good-tasting drinking water.

Water from the Red River is hard, and the water treatment process centers around softening the water. The water softening process reduces hardness from an average of 17 grains per gallon to a target value of 7 grains per gallon. Some residual hardness in the finished water is beneficial--preventing the water from becoming too corrosive.

After softening, the water is disinfected with ozone gas and then filtered to remove fine particles, additional hardness, and dissolved minerals like iron. All EPA standards for water clarity were met for 2008. Finally, chloramine is added before distribution to provide disinfection right up to the tap in Fargo homes.

The Red River: Fargo's Water Source

The primary water source for the Fargo Water Treatment Plant is the Red River. The Midtown Dam pools a sufficient depth of water to accommodate a water intake. The city also has alternate sources of water that can be used under extraordinary circumstances. An intake and pumping station on the Sheyenne River south of West Fargo can deliver water via pipeline to the treatment plant. The City of Fargo also owns 52% of the stored water rights to Lake Ashtabula, acquired by funding construction of the Baldhill Dam at Valley City. During a drought, water from the lake can be released into the Sheyenne River to provide water for Fargo's needs. Approximately a 2-year supply of water exists in the lake. This source was used during the dry years of 1976, 1984, and 1988.

The City of Fargo has participated in a number of studies since 1995 to determine the feasibility of bringing Missouri River water into the Red River Valley. Legislation passed by the U. S. Congress in 2000 directed the Bureau of Reclamation to develop an environmental impact statement (EIS) and a needs and options study that examine the transportation of Missouri River water to the Red River Valley.

A preferred option for delivering water to the Red River Valley has been selected, and its cost is estimated to be $660 million. If Congress approves the project, it will most likely be funded in part by the state of North Dakota and the federal government. The local share of the funding will come from water users residing in the 13 easternmost counties in North Dakota.

Save Money on Your Water Bill

Water is our oldest natural resource, and there are simple things you can do to conserve it...

IN THE BATHROOM...

- ✔ Install a toilet dam or plastic bottle in your toilet tank.
- ✔ Install a water-efficient showerhead (2.5 gallons or less per minute).
- ✔ Take short showers and draw less water for baths. When you buy a new toilet, purchase a low-flow model (1.6 gallons or less per flush).
- ✔ Turn off water while brushing teeth and shaving.

IN THE KITCHEN OR LAUNDRY ROOM...

- ✔ Keep a gallon of drinking water in the refrigerator rather than running the tap for cold water (this also makes the water taste better and allows chlorine to aerate out).
- ✔ Run your washing machine with a full load of clothes.
- ✔ Wash with cold water when you can.

OUTDOORS...

- ✔ Use drought-tolerant plants and grasses for landscaping, and reduce grass-covered areas.
- ✔ Cut your grass at least two inches high to shade the roots, making it more drought tolerant.
- ✔ Keep your mower sharp for healthy grass.
- ✔ Water only in the evening or very early morning to minimize evaporation.

Observe Fargo's odd/even lawn watering schedule from Memorial Day to Labor Day to help reduce the peak demand.

The Xeriscape Demonstrastion Garden (pictured below) is located at the intersection of 13th Avenue South and 5th Street. It has a wide display of perennials, shrubs, grasses, and trees to demonstrate several species of plants that fit into different water-use zones, such as very low, low, and moderate water-use types. Interpretive signs are also arranged throughout the site.

The City of Fargo has a drought management plan that monitors water flow, river levels and the precipitation index. The city has adopted an ordinance that mandates citizen participation during drought activity to reduce the impact to all water users. For more information about the drought management plan visit **www.cityoffargo.com/water**

FARGO WATER TREATMENT PLANT

2008 Water Quality Report

If you have questions about Fargo drinking water, or if you are aware of non-English speaking individuals who need help with the appropriate language translation, please contact the Water Treatment Plant at the number listed below. If you are a large-volume user, please distribute a copy of this Water Quality Report to consumers who do not receive a bill. If you would like opportunities for public participation in decisions that affect water quality, please attend City Commission meetings which are held every other Monday at 5 p.m. You can check the city's web site for exact meeting dates at **www.cityoffargo.com/commission**.

Fargo Water Treatment Plant
701-241-1469

Bruce P. Grubb
Enterprise Director

Ron Hendricksen
Water Treatment Plant Superintendent

Our public water system, in cooperation with the North Dakota Department of Health, has completed the delineation and contaminant/land use inventory elements of the North Dakota Source Water Protection Program. Based on the information from these elements, the North Dakota Department of Health has determined that our source water is moderately susceptible to potential contaminants.

Fargo Water Treatment Plant
435 14th Avenue South
Fargo, ND 58103

PRSRT STD
US Postage
PAID
Fargo, ND
Permit #1159

ECRWSS
Postal Customer

The sources of drinking water (both tap 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-occuring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

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 City of Fargo is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. Use water from the cold tap for drinking and cooking. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing the tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your drinking 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. The City of Fargo's most recent results for lead and copper are listed in the table. Fargo's lead and copper levels have historically been well below the Action Levels. Since historical levels have been low, we are on an approved reduced monitoring schedule for lead and copper.

In January of 2007, the City of Fargo began monthly testing of our source water for the presence of Cryptosporidium. Two years of source water monitoring for public water systems is required under the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR), implemented by the EPA in 2003. Cryptosporidium is a microbial parasite which is found in surface waters throughout the United States. Although filtration removes Cryptosporidium, the most common filtration methods cannot guarantee 100% removal.

The results of the 24 samples analyzed indicated an average of 0.030 oocysts per liter in the City of Fargo's source water. Per the guidelines of the LT2ESWTR, a source water with this concentration of Cryptosporidium falls into the lowest of 4 levels of required treatment. As dictated by the rule, the sample results indicate that the City of Fargo will not be required to implement additional treatment beyond that currently in place. Current treatment processes at the Fargo Water Treatment Plant include multi-stage clarification, filtration and two-stage disinfection. Symptoms of Cryptosporidium infection may include nausea, diarrhea and abdominal cramps. Most healthy individuals are able to overcome these symptoms within a few weeks. However, immuno-compromised individuals have more difficulty and are at greater risk of developing severe or potentially life threatening illness. Cryptosporidium must be ingested to cause disease and it may be ingested through means other than drinking water. Immuno-compromised individuals are encouraged to consult their doctor regarding the appropriate precautions to take to avoid infection.

Fargo water is tested for nearly 100 different contaminants. Only those detected are listed in the table on this page.

Contaminants that may be present in source water:

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-occuring 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 industrial and petroleum process by-products and can also come from gas stations, urban stormwater runoff, and septic systems.

Radioactive contaminants, which can occur naturally or result from oil and gas production and mining activities.

2008 Laboratory Testing Results for Fargo Water

KEY TO TERMS AND ABBREVIATIONS IN THE TABLE...

The **Level Found** can be the highest amount found in the water or the average of all samples analyzed, depending on the regulation. If multiple samples were tested, the lowest and highest detected values are listed under **Range of Detections**. The highest level of a substance allowed in drinking water is the **Maximum Contaminant Level (MCL)**, which is set by the EPA. Some contaminants also have **Maximum Contaminant Level Goals (MCLGs)**. This is the level of a substance where there is no known or expected health risk. MCLGs allow for a margin of safety. MCLs are set as close to MCLGs as feasible using the best available water treatment processes. The MCL for lead and copper is known as the **Action Level (AL)**. This is the concentration which, if exceeded, triggers treatment or other requirements a water system must follow. 90% of all samples tested must be below this concentration. **Turbidity** is a measure of water clarity monitored at the Fargo Water Treatment Plant. Certain treatment techniques (TT) are required to reduce the level in the drinking water. Regulations require turbidity to be <0.3 NTU 95% of the time and <1.0 NTU 100% of the time.

ppb: parts per billion **ppm**: parts per million **pCi/L**: picoCuries per liter (a measure of radioactivity) **NTU**: Nephelometric Turbidity Units **ND**: None detected

Detected Substance	Units of Measure	Date of Analysis	MCL	MCLG	Level Found in Fargo Water	Range of Detections	Typical Source in Drinking Water
Total Coliform Bacteria	positive samples	monthly	present in 5% of monthly samples	present in no samples	present in 1% of samples in February	-----	Naturally present in the environment
Haloacetic Acids	ppb	3/31/08	60	-----	16	4.89-21.7	By-product of drinking water disinfection
Total Trihalomethanes	ppb	3/31/08	80	-----	7	0.97-17.6	By-product of drinking water disinfection
Turbidity	NTU	daily	TT; 1.0 and <0.3 95% of the time	-----	100% of samples < 0.3	0.114	Soil runoff
Lead	ppb	8/5/08	90% of samples must be < 15 ppb (AL)	-----	90% of samples < 4.0	One sample exceeded 15 ppb	Corrosion of home plumbing systems, erosion of natural deposits
Copper	ppm	8/5/08	90% of samples must be < 1.3 ppm (AL)	-----	90% of samples < 0.121	No samples exceeded 1.3 ppm	Corrosion of home plumbing systems, erosion of natural deposits, leaching from wood preservative
Barium	ppm	6/21/04	2	2	0.235	-----	Discharge from drilling wastes and metal refineries, erosion of natural deposits
Fluoride	ppm	6/21/04	4	4	1.25	-----	Erosion of natural deposits, water additive, discharge from fertilizer and aluminum factories
Selenium	ppb	6/21/04	50	50	1.61	-----	Discharge from petroleum, metal refineries and mines, erosion of natural deposits
Nitrate/Nitrite (as Nitrogen)	ppm	4/14/08	10	10	0.82	-----	Erosion of natural deposits, fertilizer runoff, leaching from septic tanks, sewage
Chloramine	ppm	3/31/08	4	4	3.5	3.21-3.67	Water additive used to control microbes

Total Organic Carbon (TOC) Removal Performance Requirements

Substance *SOURCE WATER*	Date	Highest Level Found	Units	Range of Detection
Total Alkalinity	12/31/08	275	ppm	106-275
Total Organic Carbon (TOC)	6/30/08	10.9	ppm	6.82-10.9

Substance *FINISHED WATER*	Date	Highest Level Found	Units	Range of Detection
Total Organic Carbon (TOC)	12/31/08	6.34	ppm	3.38-6.34

Bromide is being tested in our source water. The ozone disinfection by-product bromate can be formed in the finished water when bromide is present in the source water.

Bromide	12/8/08	0.118	ppm	ND-0.118

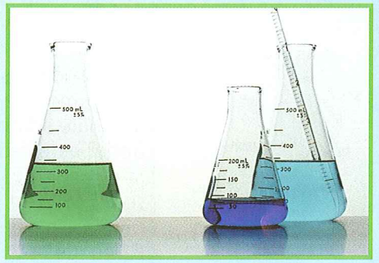
Before the City of Fargo can deliver water to your home, it must first be thoroughly tested in certified laboratories that can detect trace amounts of contaminants. The Fargo test results for last year are shown in the table above. **No contaminats were detected that exceeded EPA limits in drinking water.**

Total Organic Carbon (TOC) Removal Performance Requirements

The Fargo Water Treatment Plant is required to remove total organic carbon (TOC) from the source water. During 2008, the required removal rate was 25-35%. Our removal rate varied between 38.1% and 69% in 2008.

What You Need to Know About Drinking Water Regulations

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) 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 EPA's Safe Drinking Water Hotline (800-426-4791).



Some people may be more vulnerable to contaminants found 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/Centers for Disease Control and Prevention (CDC) 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).