



# Annual Drinking Water Quality Report

OSRWSS MNI WICONI WATER TREATMENT PLANT - FT. PIERRE, SD

# 2008

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## Introduction

To keep you informed of the quality of your drinking water, the Water Treatment Plant provides an annual water quality report. The purpose of this report is to increase consumer knowledge of drinking water quality provided by our facility.

We are proud to report that in 2008, your drinking water met all state and federal safe drinking water health standards. Our system did not violate any maximum contaminant levels or any other water quality standard.

If you have any questions, or require additional information concerning your drinking water, contact Mr. Francis Ferguson, Plant Manager at (605)223-9292. This report may be viewed online at [www.osrwss.org](http://www.osrwss.org).

## Water Conservation

Water is a vital and limited source. It is very important that every consumer make an effort to conserve water. Although, Mni Wiconi has adequate water volume to meet present and future drinking water demands, there are several reasons to conserve water.

- Saving water reduces the cost of energy required to pump water.
- Saving water lessens the strain on water systems



Above: Lake Sharpe

Below: Mni Wiconi Water Treatment Plant, Ft. Pierre



## Our Drinking Water Source

The source of Mni Wiconi WTP water is Lake Sharpe which is located directly below the Lake Oahe Dam on the Missouri River.

The system's intake is located 75 feet off the shore in the main channel of the river, and is 19 feet below the water surface at high level

during droughts and helps to avoid water use restrictions.

**Of all the Earth's water, 97% is Ocean water, 2% is frozen, and only 1% is suitable for drinking water**

### Methods to Conserve Water

- repair or replace leaking faucets and fixtures, a slow drip can waste up to 20 gallons a day, repair it and save almost 6,000 gallons per year.
- replace older toilets with an

high efficiency model, a family of four can save 16,000 gallons per year.

- landscape with plants and grasses native to this area, less water is required for irrigation.
- native plants are accustomed to this area's natural conditions.
- Don't cut your lawn too short, longer grass saves water.
- water lawns sparingly early in the morning or late in the evening.



# Turbidity:

EPA (Environmental Protection Agency) regulations require that turbidity must always be below 1.00 NTU. The regulations require that 95% of the monthly turbidity samples collected have measurements below 0.3 NTU. The WTP filter effluent water consistently had turbidity measurements below the required 0.3 NTU value as mandated by EPA. An average of 98.8 % of all samples taken monthly complied with this regulation in 2008.

Turbidity: is a measure of the cloudiness of the water; it is a good indicator of the effectiveness of our filtration system.

NTU: (nephelometric turbidity units) a measure of clarity of water; turbidity of 5.00 NTU is just noticeable to the average human eye.

MCL: maximum contaminant level that is allowed in drinking water. MCL's are set as close to MCLG's as feasible using the best available treatment technology.

MCLG: maximum contaminant level goals are health goals based on entirely on health effects.

TTHM: organic compounds, which are disinfection by-products of the chlorination of drinking water.

HAA5: the sum of five haloacetic acids found in chlorinated drinking water. It is a reaction of natural occurring organic matter with chlorinated water.

TT: treatment technique

mg/L: milligrams per liter

Turbidity (for systems serving <10,000 for calendar year 2006 and all surface water systems beginning with calendar year 2005)	MCL	MCLG	Level Found	Range	Sample Date	Violation	Typical Source
	TT: 1.00 NTU	0	.88 NTU	.03 - .88	Dec 2008	NO	Soil runoff
	TT: % of samples less than/ or equal to 0.3		98.8 %	96% - 100%			

Contaminant	Violation Yes / No	Level Detected	Unit Measurement	MCLG	MCL	Likely source of contaminant
<b>INORGANIC CONTAMINANTS (sampled June 20, 2008)</b>						
1. Cyanide	No	None	mg/L	0.2	0.2	Discharge from steel/ metal factories, from plastic and fertilizer factories
2. Sodium	No	143	mg/L	*NESC	*NESC	Naturally present in the environment
<b>DISINFECTION BY-PRODUCTS (sampled August 11, 2008)</b>						
3. Total Trihalomethanes (TTHM's)	No	0.042	mg/L	0.080	0.080	By-product of drinking water disinfection
4. Haloacetic Acids (HAA5's)	No	0.013	mg/L	0.060	0.060	By-product of drinking water disinfection
<b>TOTAL COLIFORM RULE (samples taken monthly)</b>						
4. Total coliform	No	None	Present/Absent	Two or more positive samples per month	0	Naturally present in the environment
5. Fecal coliform or E. coli bacteria						Human or animal fecal waste
<b>NITRATE (sampled June 20, 2008)</b>				<b>results: NO DETECT</b>		
<b>VOLATILE ORGANIC CHEMICALS (sampled June 12, 2008)</b>				<b>results: NO DETECTS</b>		
<b>SYNTHETIC ORGANIC CHEMICALS (sampled June 12, 2008)</b>				<b>results: NO DETECTS</b>		

1. Cyanide may cause nerve damage or thyroid problems
2. Sodium: non-enforceable secondary contaminant (\*NESC)
3. Total Trihalomethanes may cause liver, kidney or central nervous system problems; increases the risk of cancer
4. Haloacetic Acids may increase the risk of cancer

## 2008 Water Quality Results

# Waivers and Variances

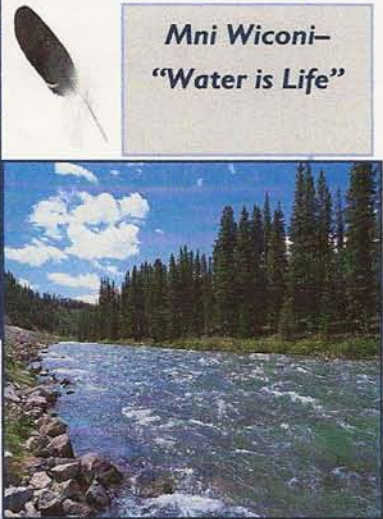
**Stage I Disinfectants & Disinfection By-Products Rule (D/DBPR)** : granted October 21, 2005. Allows for decreased monitoring from one sample per quarter to one sample per treatment plant per year, during the month of warmest water temperature.

**Inorganic Chemicals (IOC's)**: granted March 13, 2006. Not required to sample for IOC's in the current compliance cycle (2002-2010)

**Radionuclides**: sample between 2008-2013, one sample per 6 years

**Asbestos**: not required to sample unless change or add a new source or asbestos-cement pipe is discovered in distribution system.

TOC Reporting (Surface Water Treatment Plants w/ Conventional Treatment)							
	MCL	MCLG	Level Found	Range	Sample Date	Violation	Typical Source
<b>TOC</b>			15.5 % Removal rate				
Total Organic Carbon	TT	N/A	(15% is required, is based on a running annual average, computed quarterly)	4 - 24 % removal	Monthly	NO	Naturally present in the environment



Total Organic Carbon (TOC) has no health effects. However, provides a medium for the formation of disinfection by-products, include TTHM's and HAA5's. Drinking water containing these by-products in excess of the MCL may lead to adverse health effects, liver or kidney problems, nervous system effects, and may lead to an increased risk of getting cancer.

## Previous Years Sampling Detections

Contaminant	Violation Yes / No	Level Detected	Sample Date	Unit Measurement	MCLG	MCL	Likely source of contaminant
<b>Radioactive Contaminants</b>							
1. Alpha Emitters	NO	1.5+/-2.5	2003	pCi / l	0	15	Erosion of natural deposits
<b>Inorganic Contaminants (not required to sample for IOC's in 2008, except for cyanide and sodium)</b>							
2. Arsenic	NO	1.0	2003	ppb (parts per billion)	N/A	10	Erosion of natural deposits; runoff from orchard; runoff from glass and electronics production wastes
3. Barium	NO	.04	2005	mg /L	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
4. Chromium	NO	.0032	2005	mg/L	0.1	0.1	Discharge from steel and pulp mills; erosion of natural deposits
5. Selenium	NO	.0015	2005	mg/L	.05	.05	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
6. Nickel	NO	.0035	2005	mg/L	.1	.1	Naturally present in the environment
7. Antimony	NO	.0004	2006	mg/L	0.006	0.006	Discharge from petroleum refineries; fire retardants; ceramics; electronics solder
8. Fluoride	NO	.98	2006	mg/L	4.0	4.0	Erosion of natural deposits; water additive to promote strong teeth; discharge from fertilizer and aluminum factories

1. Alpha Emitters-certain minerals are radioactive and may emit a form of radiation known as alpha radiation, drinking water over the MCL over many years increase risk of cancer.
2. Arsenic-drinking water over the MCL over many years could experience skin damage or problems with circulatory system, increased risk of getting cancer.
3. Barium-could cause increase in blood pressure in people drinking water containing levels in excess of the MCL over many years.
4. Chromium-some people who use water containing chromium well in excess of the MCL, over many years could experience allergic dermatitis.
5. Selenium-an essential nutrient, some people who drink in excess of the MCL over many years could experience hair or fingernail loss; numbness in finger/toes; circulation problems.
6. Nickel-there are no known health problems, has the potential to decrease body weight; heart and liver damage, skin irritation when exposed to levels above the MCL for a lifetime.
7. Antimony-increase in blood cholesterol; decrease in blood sugar
8. Sodium- non-enforceable secondary contaminant

# Why are there contaminants in my drinking water?

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 (EPA) Safe Drinking Water Hotline (800-426-4791).

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 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:

1. Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
2. Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming.
3. Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
4. 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 storm water runoff, and septic systems.
5. 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 (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.



## Do I need to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as people with cancer undergoing chemotherapy, people 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 of Disease Control (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 (1-800-426-4791).

## Special precautions about the health effects of Lead!



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. Mni Wiconi Water Treatment Plant 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 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>

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