



2007 Drinking Water Quality Report

OSRWSS Mni Wiconi Water Treatment Plant - Ft. Pierre, SD



Our Drinking Water Source

The source of the Mni Wiconi Water Treatment Plant's drinking water is Lake Sharpe which is located directly below Lake Oahe and the Oahe Dam on the Missouri River.

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

Introduction

To keep you informed of the quality of your drinking water, the Mni Wiconi Water Treatment Plant (OSRWSS) provides an annual water quality report. The purpose of this report is to raise your understanding of drinking water and awareness the need to protect our drinking water sources.

In 2007, as in previous years, your drinking water met all state and federal safe drinking water health standards and our system did not violate a maximum contaminant level or any other water quality standard. This report provides an overview of last year's water quality as well as details regarding your drinking water.

If you have any questions or require additional information concerning your drinking water, please contact Francis Ferguson, the water treatment plant manager at (605) 223-9292. This report may be viewed online at www.orswss.org.



Above: Lake Sharpe. Below: Intake vault on the bank of the river.



Facts

The Mni Wiconi Core Water Treatment Plant filters its treated source water that originates from Lake Sharpe. The filter effluent water consistently had turbidity measurements below the required .3 NTU value as mandated by EPA. 99.51% of all the samples taken monthly complied with this regulation in 2007.

In 2007, the Mni Wiconi Water Treatment Plant sent over 642 million gallons of water to the distribution system. The total amount of finished water delivered is 15% more than what was delivered in 2006 when 543 million gallons was sent to distribution and up 26% from year 2005 when 432 million gallons of drinking water was sent out. This averages to more than 53.5 million gallons of drinking water being produced monthly in the year 2007.

Water Conservation

Water is a vital and limited resource. It is very important that every consumer make an effort to conserve water. Although the 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 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.
- Check your faucets for leaks. A slow drip can waste up to 20 gallons of water a day. Repair it and you can save almost 6,000 gallons a year.
- Replace older "traditional" toilets with an updated high efficiency model. By doing so, a family of four could save more than 16,000 gallons of water a year.
- Landscape with plants and grasses native to this area. Less water is required for landscape irrigation as 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 evening.

2007 Water Quality Results

Regulated Contaminants

| Contaminant | Violation Y/N | Level Detected | Unit Measurement | MCLG | MCL | Likely Source of contaminant |
|-------------|---------------|----------------|------------------|------|-----|------------------------------|
|-------------|---------------|----------------|------------------|------|-----|------------------------------|

Inorganic Contaminants

Sampled May 23, 2007

| | | | | | | |
|------------|---|------|------|------|------|--|
| 1. Cyanide | N | None | Mg/l | 0.2 | 0.2 | Discharge from steel/metal factories; discharge from plastic and fertilizer factories. |
| 2. Sodium | N | 70.3 | Mg/l | NESC | NESC | Naturally present in the environment |

Nitrate

Sampled May 29, 2007

NO DETECT

Volatile Organic Contaminants

Sampled May 23, 2007

NO DETECT

Disinfection By Products Rule Results

| | | | | | | |
|-----------------------------------|---|--|------|----|-----|---|
| 3. Total Trihalomethanes (TTHM's) | N | Yearly Avg: 39 Sampled August 15, 2007 (Warmest Water Temp) | Ug/L | 80 | 80 | By product of drinking water disinfection. |
| 4. Haloacetic Acids (HAA5's) | N | Yearly Avg: 21 Sampled August 15, 2007 (Warmest Water Temp) | Ug/L | 60 | N/A | By products of drinking water disinfection. |

No monitoring or MCL exceedance violations were incurred in 2007.

1. Cyanide may cause nerve damage or thyroid problems.
2. Sodium: Non enforceable secondary contaminant.
3. Total Trihalomethanes may cause liver, kidney or central nervous system problems; increases the risk of cancer.
4. Haloacetic Acids: increased risk of cancer.

2007 Water Quality Results

Turbidity

| | MCL | MCLG | Level Found | Range | Sample Date | Violation | Typical Source |
|---|---|------|-------------|---------|-------------|-----------|----------------|
| Turbidity (for systems serving < 10,000 for calendar year 2006 and all surface water systems beginning with calendar year 2005) | TT= 1 NTU | 0 | .57 NTU | .03-.57 | March 2007 | NO | Soil Runoff |
| | TT= Percentage of samples ≤ 0.3 NTU | | 99.46% | N/A | | | |

Total Coliform Rule

| | MCL | MCLG | Level Found | Range | Sample Date | Violation | Typical Source |
|------------------------------------|---|------|-------------|-------|--|-----------|--------------------------------------|
| Total Coliform | Two or More Positive Samples per Month. | 0 | N/A | N/A | Samples Taken Monthly Beginning In Oct. 2006 | NO | Naturally present In the environment |
| Fecal coliform or E. coli bacteria | | | | | | | Human or Animal fecal waste |

Beginning October 1, 2006, the US Environmental Protection Agency (EPA) began to require the Mni Wiconi Water Treatment Plant to collect one bacteriological sample per month for total coliform analysis and submit the results to EPA.

TOC Reporting (Surface Water Treatment Plants w/Conventional Treatment)

| | MCL | MCLG | Level Found | Range | Sample Date | Violation | Typical Source | Health Effects |
|-----|-----|------|--|---------------|-------------|-----------|--------------------------------------|--|
| TOC | TT | N/A | 17.67% Removal (15% is Required except June which had 45% removal and required 25% removal) | 8-45% Removal | Monthly | NO | Naturally present In the environment | Total organic carbon (TOC) has no health effects. However, total Organic carbon provides a medium for the formation of disinfection by products. These byproducts include THM's and HAA5s. Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver, or kidney problems or nervous system effects, and may lead to an increased risk of getting cancer. |

Waivers & Variances

Decreased Monitoring Under the Stage 1 Disinfectants & Disinfectants Byproducts 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 with the warmest temperature. Applies to TTHM and HAA5 Sampling as long as future results do not exceed the MCL of .080 mg/l for TTHM or .060 for HAA5.

Waiver for Inorganic Chemicals (IOC): Granted March 13, 2006. This waiver is for a period of nine years and is in effect during EPA's compliance cycle of 2002-2010. This system must sample for IOCs once during this waiver period.

Radionuclides: This system is in grandfathered status.

Asbestos: This system is required to sample once every nine years. Next sampling required will be during the years 2011-2013.

Previous Years Sampling Detections

Regulated Contaminants

| Contaminant | Violation Y/N | Level Detected | Date | Unit Measurement | MCLG | MCL | Likely Source of contaminant |
|-------------|---------------|----------------|------|------------------|------|-----|------------------------------|
|-------------|---------------|----------------|------|------------------|------|-----|------------------------------|

Radioactive Contaminants

| | | | | | | | |
|-------------------|---|-----------|------|-------|---|----|------------------------------|
| 1. Alpha Emitters | N | 1.5+/-2.5 | 2003 | pCi/l | 0 | 15 | Erosion of natural deposits. |
|-------------------|---|-----------|------|-------|---|----|------------------------------|

Inorganic Contaminants

| | | | | | | | |
|-------------|---|-------|------|------|-------|-------|--|
| 2. Arsenic | N | 1 | 2003 | ppb | N/A | 10 | Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes. |
| 3. Barium | N | .04 | 2005 | Mg/l | 2 | 2 | Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits. |
| 4. Chromium | N | .0032 | 2005 | Mg/l | 0.1 | 0.1 | Discharge from steel and pulp mills; erosion of natural deposits. |
| 5. Selenium | N | .0015 | 2005 | Mg/l | .05 | .05 | Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines. |
| 6. Nickel | N | .0035 | 2005 | Mg/L | .1 | .1 | Naturally present in the environment. |
| 7. Antimony | N | .0004 | 2006 | Mg/l | 0.006 | 0.006 | Discharge from petroleum refineries; fire retardants; ceramics; electronics solder. |
| 8. Fluoride | N | .98 | 2006 | Mg/l | 4 | 4 | Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories. |
| 9. Sodium | N | 70.3 | 2006 | Mg/l | NESC | NESC | Naturally present in the environment. |

This system was not required to sample for the above Inorganic Contaminants except for cyanide and sodium in 2007.

1. Alpha Emitters: Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
2. Arsenic: Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, or may have an 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: Selenium is an essential nutrient, however, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.
6. Nickel: There are no known health problems when people are exposed to levels above the MCL for short periods of time. Nickel has the potential to decrease body weight; heart and liver damage and skin irritation when exposed to levels above the MCL for a lifetime.
7. Antimony: Increase in blood cholesterol; decrease in blood sugar.
8. Fluoride: Bone disease (pain and tenderness of the bones); Children may get mottled teeth.
9. Sodium: Non enforceable secondary contaminant.

Abbreviations & Definitions

MCLG (*Maximum contaminant level goal*): The level of contaminant in drinking water below which there is no known or expected risk to health, MGLGs allow for a margin of safety.

MCL (*Maximum contaminant level*): The highest level of contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

TTHM (*Total Trihalomethane*): Organic compounds, which are disinfection by-products of the chlorination of drinking water. Some people who drink water containing TTHMs in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.

Ug/l: Micrograms per liter or parts per billion.

NESC: Non enforceable secondary contaminant.

TT: Treatment Technique

NTU (*Nephelometric Turbidity Units*): A measure of clarity (turbidity) of water; turbidity in excess of 5 NTU is just noticeable to the average person.

Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. EPA regulations require that turbidity must always be below 1.0 NTU. The regulations require that 95% of the turbidity samples collected have measurements below 0.3 NTU.

PPM: Parts per million, or milligrams per liter (mg/L).

n/a (NA): Not any. **NLS:** No limit set. **ND:** Not Detected.

PPB: Parts per billion, or micrograms per liter (ug/L).

HAA5 (*Haloacetic Acids*): The sum of five haloacetic acids found in chlorinated drinking water. It is a reaction of natural occurring organic matter with chlorinated water. HAA5's increase a person's risk of cancer.

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 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:

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 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 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 Water Drinking Hotline (800-426-4791)