

2006 Drinking Water Quality Report



Welcome to this year's Drinking Water Report. This report contains information about the quality drinking water delivered to you each day by Southwest Water Authority (SWA).

Where does our drinking water come from and how is it treated?

The SWA gets its drinking water from Lake Sakakawea (a surface water source), which is located approximately 85 miles northeast of Dickinson. The water treatment process begins at the raw water intake, where sodium permanganate is added for taste and odor reduction. From there, the water is pumped 26 miles to Dodge, where chloramines (chlorine plus ammonia) are added to inactivate Giardia, viruses, and other microorganisms. The water then travels another 60 miles to the treatment plant in Dickinson, where it goes through the following processes before being delivered to our customers:

- **Clarification and softening**, where lime, alum, and a flocculant are added to clarify the water and reduce hardness to about 6.5-8 grains per gallon (or 110-140 parts per million).
- **Stabilization**, where carbon dioxide is added to adjust pH and phosphate is added as a scale and corrosion inhibitor. Fluoride is also added at this point.
- **Filtration**, where seven dual-media filters remove suspended particles not removed in the clarification and softening process. Filtration can also be effective in the physical removal of the protozoan *Cryptosporidium*.
- **Disinfection**, where chloramines are once again added to reduce bacteria to a safe level.

Where do drinking water contaminants come from?

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.

Is our raw water supply susceptible to contamination?

As part of a nationwide program, the North Dakota Department of Health recently completed an assessment of our source water and determined that our water system is moderately susceptible to potential contaminant sources. They also noted that "historically, Southwest Water Authority has effectively treated this source water to meet drinking water standards." Information about the Source Water Assessment can be obtained by calling 701-225-0241 or 888-425-0241, or e-mailing us at swa@swwater.com.

Is our water safe to drink?

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: (800-426-4791). More information about drinking water is available on EPA's website at www.epa.gov/safewater/.

In order to ensure that tap water is safe to drink, 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.

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 for Disease Control and Prevention (CDC) guidelines on appropriate means to



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lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Which contaminants were detected in our drinking water?

EPA requires us to monitor for over 90 drinking water contaminants and those that were detected are listed in the table below. Test results are from 2006. The State does allow reduced monitoring for certain contaminants because their levels do not change significantly over time. For this reason, some of the test results are more than one year old.

Definitions and abbreviations:

- Action Level or AL: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- Maximum Contaminant Level or MCL: 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.
- Maximum Contaminant Level Goal or MCLG: 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.
- Maximum Residual Disinfectant Level or MRDL: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- Maximum Residual Disinfectant Level Goal or MRDLG: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Parts per billion or ppb: 1 ppb is equivalent to adding 1 pound of a contaminant to 999,999,999 pounds of water (about 120,000,000 gallons).
- Parts per million or ppm: 1 ppm is equivalent to adding 1 pound of a contaminant to 999,999 pounds of water (about 120,000 gallons).
- Treatment Technique or TT: A required process intended to reduce the level of a contaminant in drinking water.
- N/A: Not Applicable
- ND: Not Detected
- NTU: Nephelometric Turbidity Units

¹ Coliform bacteria, naturally present in the environment, are used as an indicator of

potentially harmful bacteria. There was one coliform-positive sample in August, but repeat sampling indicated that no coliform bacteria were present.

² Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of our filtration system.

³ EPA has not established enforceable drinking water standards for unregulated contaminants, but they are monitored to determine whether or not future regulation is warranted.

As you will see from the following table, there were no exceedances or violations. We are pleased to report that our water system was also in compliance with all other drinking water regulations in 2006.

We want our valued customers to be informed about their water utility. If you have any questions about this report or any other questions, please contact Sandy Burwick, SWA CFO/ Office Administrator or Roger Dick, SWA Water Treatment Plant Operator at 701-225-0241 or 888-425-0241 or e-mail us at swa@swwater.com.. You are welcome to attend any of our regularly scheduled meetings, held on the first Monday of each month. If you are interested in attending or would like to request agenda time, please contact us at one of the numbers listed above for information on time and location. If you are aware of non-English speaking individuals who need assistance with language translation, please contact us, as well. We would also appreciate it if our large volume water customers would post copies of this report in conspicuous locations or distribute them to tenants, residents, patients, students and/or employees, allowing individuals who consume our drinking water, but do not receive water bills, to learn about our water system.



TABLE OF DETECTED REGULATED CONTAMINANTS

Contaminant (units)	MCLG	MCL	Level Detected	Detection Range	Test Date	Exceedance or Violation?	Major Sources in Drinking Water
Total Organic Carbon (TOC) Removal							
TOC (ppm) Source Water	N/A	TT	3.27	2.42 - 3.27	2002	N/A	Naturally present in the environment.
TOC (ppm) Finished Water	N/A	TT	2.52	1.48 - 2.52	2002	N/A	Naturally present in the environment.
Microbial Contaminants							
Total Coliform Bacteria ¹	0	1 positive sample	1 positive sample	N/A	2006	No	Naturally present in the environment.
Turbidity ² (NTU)	N/A	TT = .3	0.28	N/A	2006	100% of samples met turbidity limit	Soil runoff.
Inorganic Contaminants							
Barium (ppm)	2	2	0.0132	N/A	2002	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Copper (ppm)	1.3	AL = 1.3	0.111	N/A	2004	No sites exceeded the Action Level	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives.
Fluoride (ppm)	4	4	1.3	N/A	2002	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate-Nitrite (ppm)	10	10	0.20	N/A	2006	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Selenium (ppb)	50	50	1.57	N/A	2002	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.
Disinfectants							
Chloramines (ppm)	MRDLG = 4	MRDL = 4.0	2.7	2.21 - 2.94	2006	No	Water additive used to control microbes.
Disinfection By-products							
Total Haloacetic Acids (ppb)	N/A	60	12	ND - 13.7	2006	No	By-product of drinking water disinfection.
Total Trihalomethanes (ppb)	N/A	80	6	3.23 - 12.8	2006	No	By-product of drinking water chlorination.
Radioactive Contaminants							
Uranium, Combined (ppb)	0	30	0.388	N/A	2003	No	Erosion of natural deposits.

TABLE OF DETECTED UNREGULATED CONTAMINANTS³

Alkalinity, Carbonate (ppm)	N/A	N/A	2	ND - 2	2006	N/A	Natural erosion, plant activities, and certain industrial waste discharges.
Bicarbonate as HCO ₃ (ppm)	N/A	N/A	186	176 - 186	2006	N/A	Natural erosion, plant activities, and certain industrial waste discharges.