

2003 CONSUMER CONFIDENCE REPORT



Our constant goal is to provide you with a safe and dependable supply of drinking water.

- Southwest Water Authority
Management and Staff

Welcome to this year's Drinking Water Report. This report provides water quality information and facts regarding the drinking water delivered daily by Southwest Water Authority (SWA).

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

SWA gets its drinking water from Lake Sakakawea, a surface water source, located approximately 85 miles northeast of Dickinson. The water treatment process begins right at the raw water Intake, where sodium permanganate is added to reduce taste and odor compounds that may be present in the raw water. From there, the water is pumped 26 miles to Dodge where chlorine and ammonia (chloramines) are added to inactivate Giardia, viruses and other microorganisms. The water then travels another 60 miles before finally reaching the treatment plant in Dickinson. It then 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 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 the result of oil and gas production and mining activities.

Is our water supply susceptible to contaminants?

Recent amendments to the Safe Drinking Water Act require the North Dakota Department of Health to complete a source water assessment for SWA. The Health Department completed this assessment of our water source in 2003 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 1-888-425-0241 or e-mailing swa@swwater.com.

Think of one part per million as: one inch in 16 miles; one minute in two years; one cent in \$10,000.00.

Think of one part per billion as: one inch in 16,000 miles; one second in 32 years; one cent in \$10,000,000.00.



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 (EPA) Safe Drinking Water Hotline (800-426-4791). Another good source for information about drinking water is available on EPA's Web site at www.epa.gov/safewater/.

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

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.

Which contaminants were detected in our drinking water?

EPA requires us to monitor for over 80 drinking water contaminants and those that were detected are listed in the table on the following page. Test results are from 2003. The North Dakota Department of Health 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 used in the table:

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: One ppb is equivalent to adding one pound of a contaminant to 999,999,999 pounds of water (about 120,000 gallons).

Parts per million or ppm: One ppm is equivalent to adding one 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



Help protect our most precious resource! Please help protect our drinking water by properly disposing of substances that could eventually contaminate our nation's water supply!

Table of Detected Regulated Contaminants

Contaminant (units)	MCLG	MCL	Level Detected	Detection Range	Test Date	Exceedance or Violation?	Major Sources in Drinking Water
Microbial Contaminants							
Turbidity* (NTU)	N/A	TT = .3	0.15	N/A	2003	100% of samples met turbidity limit	Soil runoff.
TOC Removal							
Total Organic Carbon (ppm) Source water	N/A	TT	2.99	2.55 - 2.99	2003	N/A	Naturally present in the environment.
Total Organic Carbon (ppm) Finished Water	N/A	TT	2.03	1.59 - 2.03	2003	N/A	Naturally present in the environment.
Alkalinity (ppm)	N/A	N/A	210	148 - 210	2003	N/A	Natural erosion, plant activities, and certain industrial wastewater discharges.
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	0.0842	N/A	2001	No sites exceeded the AL	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	0.11	N/A	2003	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.
Disinfection By-products							
Chlorine (ppm)	MRDLG = 4	MRDL = 4.0	2.45	2.21 - 2.56	2003	No	Water additive used to control microbes.
Total Haloacetic Acids (ppb)	N/A	60	7	ND - 12.1	2003	No	By-product of drinking water disinfection.
Total Trihalomethanes (ppb)	N/A	80	5	3.67 - 6.45	2003	No	By-product of drinking water chlorination.
Radioactive Contaminants							
Uranium, Combined (ppb)	0	30	0.388	N/A	2003	No	Erosion of natural deposits.

NTU: Nephelometric Turbidity Units

* Turbidity, the measure of the cloudiness in water, is monitored and used as an indicator of the effectiveness of our filtration system. Average tap water turbidity for 2003 was 0.049 NTU.

As you can see from the table, there were no exceedances or violations. Our water system was also in compliance with all other drinking water regulations in 2003.

To learn more about SWA. . .

We want our valued customers to be informed about their water utility. If you have any questions about this report, or SWA, please call Roger Dick, Water Treatment Plant Operator, 701-225-9149, or Mary Massad, CFO/Office Administrator at 701-225-0241 or 1-888-425-0241 or e-mail swa@swwater.com.

You are welcome to attend our regularly scheduled meetings, held the first Monday of each month. If you are interested in attending or would like to request agenda time, please contact us for information on meeting time and location. Also, if you are aware of non-English speaking individuals who need assistance with the appropriate language translation, please contact us at any of the numbers listed above.



Large volume water customers are asked to post copies of this report in conspicuous locations or distribute them to tenants, residents, patients, students and/or employees, so individuals who consume the water, but do not receive a water bill, can learn about our water system.

Southwest Water Authority Board of Directors

To obtain information in your area regarding Southwest Water Authority, contact your county or city representative.



Left to right, seated: Leonard Jacobs, Secretary/Treasurer, Adams County; Don Flynn, Vice Chairperson, Bowman County; Loren Myran, Chairperson, Stark County; standing: Darrel Oech, Golden Valley County; Emanuel Stroh, Dunn County; Joe Steier, Slope County; Ray Bieber, Hettinger County; Brian Roth, Grant County; Larry Bares, City of Dickinson; Larry Ziegler, City of Dickinson; Duane Bueligen, Oliver County; John Klein, Mercer County; James Odermann, Billings County and Steve Tomac, Morton County.

Adams

Leonard Jacobs (2004)*
401 Highway 22 North
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Billings

James Odermann (2004)
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Bowman

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Emanuel Stroh (2004)
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*Executive Committee Members
**Chairperson