



2011 Drinking Water Quality Report

City of Dickinson, North Dakota

We are very pleased to present the Annual Drinking Water Quality Report. The purpose of this report is to provide information to our customers about the quality of our drinking water and the potential health risks, if any, associated with any detected contaminants. It will also provide access to additional information that will allow you to make informed decisions regarding your drinking water consumption.

This report has been prepared in accordance with recent amendments to the Safe Drinking Water Act. It contains definitions of terms, specific language requirements, a table of water quality data, and other pertinent information we hope you will find useful and educational. Please read it carefully and contact Jeff Brezden at (701) 456-7744 if you have any questions.

The Source Water Assessment is completed and available at SWA or call 225-0241.

The City of Dickinson receives its drinking water from Lake Sakakawea, which is a surface water source. Lake Sakakawea is located approximately 85 miles Northeast of Dickinson. The beneficial status of Lake Sakakawea providing source water for the SWA public water system is classified as fully supporting, while the potential contaminant sources in the source water protection area are of low concern. The SWA public water system is classified as **moderately susceptible**. Although the SWA public water system is classified as moderately susceptible to the source water's potential contaminant sources, it should be noted that historically, SWA has effectively treated this source water to meet drinking water standards. 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. At the Dickinson Water Plant the following processes are used before final delivery to rural and city customers.

- ❖ **Clarification and softening**, where quicklime is added to the water to change dissolved calcium and magnesium (hardness) into undissolved particles. Alum and a flocculant are then added to collect those particles into heavier pieces that will settle out of the water.
- ❖ **Stabilization**, where carbon dioxide is added to bring pH down to acceptable levels. Phosphate is added to limit scale and corrosion. Fluoride is also added to provide resistance to tooth decay.
- ❖ **Filtration**, where seven sand and anthracite coal filters remove suspended particles not removed in the clarifying 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 and provide a residual that protects against contamination.

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 effects can be obtained by calling the Environmental Protection Agency's 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:

- ❖ **Microbial contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agriculture livestock operations, and wildlife.
- ❖ **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.
- ❖ **Pesticides and Herbicides**, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- ❖ **Organic Chemical Contaminants** including synthetic and volatile 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.

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

We encourage you to participate in decisions that may pertain to water quality by attending any of our regularly scheduled City Commission Meetings. They are held at 5:15 PM on the 1st and 3rd Monday of each month at City Hall, which is located at 99 2nd Street East.

The Southwest Water Authority (SWA) also conducts monthly meetings that may pertain to water quality. These meetings are held on the 1st Monday of each month. If you are interested in attending or would like to request agenda time, please call (701) 225-0241 for more information.

The EPA requires testing for certain unregulated contaminants, but has not established enforceable drinking water standards for them. They are monitored to determine whether or not future regulation is warranted. To obtain information about these tests you may contact Ken Knight, Water Treatment Plant Operator or Sandy Burwick SWA CFO/ Office Administrator at 1-888-425-0241 or e-mail Southwest Water Authority at swa@swwater.com

- ❖ **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 (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.
- ❖ **Highest Compliance Level:** The Highest level of that contaminate used to determine compliance with National Primary water Regulation.
- ❖ **Obsvns:** Observations/field at 100 power
- ❖ **Picuries per liter or pCi/l:** A measure of radioactivity
- ❖ **Microhos per centimeter or umho/cm:** A measure of conductivity
- ❖ **N/A:** Not Applicable **ND:** Not Detected **NTU:** Nephelometric Turbidity Units

Since the SW Water Authority took over management, operation, and maintenance of the Water Treatment Plant on April 1, 2000, there are two reporting entities for the year 2011, SW Water Authority & the City of Dickinson. Therefore, the results of both entities are listed below in two separate tables.

SOUTHWEST WATER AUTHORITY’S 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							
Alkalinity (ppm) Source Water	N/A	N/A	156	139 -156	2011	N/A	Natural erosion, plant activities, and certain industrial waste discharges.
Total Organic Carbon (ppm) Source Water	N/A	TT	4.565	3.20 – 4.57	2011	N/A	Naturally present in the environment.
Total Organic Carbon (ppm) Finished Water	N/A	TT	2.87	2.04 – 2.87	2011	N/A	Naturally present in the environment.
Microbial Contaminants							
Turbidity ¹ (NTU)	N/A	TT = .3	0.15	N/A	2011	100% of samples met turbidity limit	Soil runoff.
Inorganic Contaminants							
Barium (ppm)	2	2	0.0143	N/A	2010	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Fluoride (ppm)	4	4	1.21	N/A	2010	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate-Nitrite (ppm)	10	10	0.15	N/A	2011	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Selenium (ppb)	50	50	1.12	N/A	2010	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.
Radioactive Contaminants							
Gross Alpha, including Ra, excluding Rn & U (pCi/l)	15	15	0.01608	N/A	2009	No	Erosion of natural deposits.
Radium, Combined (226, 228)(pCi/l)	0	5	1.05	N/A	2009	No	Erosion of natural deposits.
Uranium, Combined (ppb)	0	30	0.024	N/A	2009	No	Erosion of natural deposits.

SOUTHWEST WATER AUTHORITY’S TABLE OF DETECTED UNREGULATED CONTAMINANTS²

Alkalinity, Carbonate (ppm)	N/A	N/A	2	ND - 2	2011	N/A	Natural erosion, plant activities, and certain industrial waste discharges.
Bicarbonate as HCO ₃ (ppm)	N/A	N/A	190	165 - 190	2011	N/A	Natural erosion, plant activities, and certain industrial waste discharges.

CITY OF DICKINSON’S TABLE OF DETECTED CONTAMINATES

Lead/Copper	MCLG	MCL	Level Detected	Detection Range	Test Date	Exceedance or Violation	Major Sources in Drinking Water
Copper	NA	AL 1.3 ppm	0.044 90 TH %	N/A	August 2010	No site exceeded the action level.	Corrosion of household plumbing systems, erosion of natural deposits; leaching from wood preservatives.
Lead	NA	AL 15 ppb	2.72 90 TH %	N/A	August 2010	No site exceeded the action level.	Corrosion of household plumbing systems; Erosion of natural deposits.
Disinfectants							
Chloramines (ppm)	MRDLG = 4	MRDL = 4	2.75	2.04 – 3.39	2011	No site exceeded the action level.	Water additive used to control microbes
MICROBIAL CONTAMINATES							
Total Coliform Bacteria	0	0	0	N/A	2011	NO	Naturally present in the environment

Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that cause systems such as nausea, cramps, and diarrhea and associated headaches.

Coliform Bacteria are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful bacteria may be present.

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

Copper, copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson’s disease should consult a doctor.

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. The City of Dickinson 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 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>.

Nitrate, nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than 6 months of age. Infants below the age of 6 months who drink water containing Nitrate in excess of 10 ppm water can become seriously ill and, if left untreated may die. Symptoms include shortness of breath and “blue baby syndrome.” Nitrate levels may rise quickly for short periods of time because of rainfall of agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

TTHMs, some people who drink water-containing trihalomethanes 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.

Haloacetic Acids, some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

Our water system was also in compliance with all other Drinking Water Regulations in 2011. If you have any questions about this report, need additional copies, or would like more information about our drinking water, please contact: Jeff Brezden, City of Dickinson, 99 2nd Street E, Dickinson, ND 58601, or call (701) 456-7744 from 7 AM to 5 PM, Monday through Friday. You can also email me at Jeff.Brezden@dickinsongov.com with your questions.

If you are aware of non-English speaking individuals who need help with the appropriate translation, contact us at the number listed above.

The City of Dickinson would appreciate it if our large volume water customers would post copies of this report in a conspicuous location or distribute them to tenants, residents, students, and/or employees. This will allow individuals who consume our drinking water, but do not receive water bills, to learn about our water system. This report is also available on our web site at www.dickinsongov.com/

