Southwest Water Authority
4665 2nd Street SW
Dickinson, ND 58601

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Southwest Water Authority Board of Directors

ADAMS
Jonathon Eaton (2012)
201 Hwy 22 NW
Reeder, ND 58649-9431
853-2987
etn_nd@hotmail.com

GOLDEN VALLEY
Darrel Oech* (2010)
16690 40th St SW
Beach, ND 58621-9440
872-4807
872-3950 (Fax)
darreloech@ndgateway.com

MORTON
George Saxowsky (2010)
7230 38th St
Hebron, ND 58638-9384
878-4901
saxfarm@westriv.com

DICKINSON
Larry Stang (2012)
418 5th St SW
Dickinson, ND 58601
483-4541
ldsribs@ndsupernet.com

BILLINGS
James Odermann (2012)
2767 129th Ave SW
Belfield, ND 58622-9330
575-4767
odermann@goesp.com

GRANT
Brian Roth (2012)
7260 77th Ave SW
New Leipzig, ND 58562-9707
584-2470
bgroth@westriv.com

OLIVER
Duane Bueligen (2012)
4251 29th St
New Salem, ND 58563-9160
843-7239
843-7125 (Fax)
bueligen@westriv.com

Larry Bares (2010)
PO Box 669
Dickinson, ND 58602-0669
225-2030
lebares@ndsupernet.com

BOWMAN
Don Flynn* (2010)
PO Box 531
Scranton, ND 58653-0531
275-6351
dwfly@ndsupernet.com

HETTINGER
Ray Bieber (2010)
402 S Meadow Lane
Mott, ND 58646-7274
824-2712
bjb@ndsupernet.com

SLOPE
Dave Juntunen (2012)
6205 145th Ave SW
Amidon, ND 58620-9686
879-6372
djuntunen@ndsupernet.com

DUNN
Emanuel Stroh (2012)
PO Box 195
Manning, ND 58642-0195
573-4552
mannys@ndsupernet.com

MERCER
John Klein (2010)
PO Box 56
Beulah, ND 58523-6437
873-2162
klur@westriv.com

STARK
**Loren Myran* (2010)
9440 32nd St SW
Taylor, ND 58656-9653
974-3644
974-2277 (Fax)
lorenmyran@ndsupernet.com

* Executive Committee Members
** Chairperson

2009 Drinking Water Quality Report

Welcome to our 12th Annual Drinking Water Report. This report contains important information about the quality of the drinking water the Southwest Water Authority (SWA) delivers to you each and every day. We work tirelessly to make the water that comes from your tap as fresh, clear and good tasting as we can, but we want you to be assured that nothing is of a higher priority to us than drinking water safety.

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

The raw water intake is at Lake Sakakawea, a surface water source, about 86 miles northeast of Dickinson. The quality and condition of this water varies with lake level, spring runoff and other factors. We monitor regularly for offensive tastes and odors in the raw water and if any are present we add sodium permanganate to reduce them. From there the water is pumped 26 miles to Dodge where chlorine and ammonia are added to form chloramines, whose job it is to inactivate microorganisms like Giardia, viruses, and bacteria in the water. The water then travels another 60 miles to the Water Treatment Plant in Dickinson where it is treated using the following processes:

- *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.

From here the drinking water is pumped through the distribution system to all our customers including you.

How do contaminants get into our drinking water?

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.

How vulnerable is our raw water supply 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, SWA has effectively treated this source water to meet drinking water standards." Information about Source Water Assessment can be obtained by calling 701-225-9149 or 1-888-425-0241, or e-mailing us at swa@swwater.com.

A new Environmental Protection Agency (EPA) regulation requires that we sample our source water for certain microbial contaminants to help determine whether or not changes need to be made to our treatment process in the future. There were < 1.0-2.0 E. Coli/100 ml, no Giardia cysts, and 0-1 Cryptosporidium oocysts detected during 2009. If results continue along this trend, no further changes to our treatment process will be necessary.

Consumer Confidence Report for Southwest Pipeline Project Customers Served by the Dickinson Water Treatment Plant

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 (1-800-426-4791). 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 lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

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 to the right. Test results are from 2009. 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 may be 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).
- Picocuries per liter or pCi/l: A measure of radioactivity.
- 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

So the bottom line is this.

At SWA, our highest priority is your family's health where drinking water is concerned. With that thought in mind, we are pleased to report that our water system was in compliance with all drinking water regulations in 2009. We want you and all of our valued customers to be informed about their water utility, therefore if you have any questions about this report or any other concerns, please contact Ken Knight, Water Treatment Plant Operator (701-225-9149) or Sandy Burwick, CFO/Office Administrator (1-888-425-0241) or e-mail us at swa@swwater.com. You are welcome to attend any of our regularly scheduled meetings, which are generally 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 the number listed above for information on time and location. If you are aware of non-English speaking individuals who need assistance with the appropriate language translation, please contact us at the number listed above. In order to allow individuals who consume our drinking water, but who do not receive water bills, to learn about our water system, we would 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.

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	146	139 - 146	2009	N/A	Natural erosion, plant activities, and certain industrial waste discharges.
Total Organic Carbon (ppm) Source Water	N/A	TT	3.34	2.62 - 3.34	2009	N/A	Naturally present in the environment.
Total Organic Carbon (ppm) Finished Water	N/A	TT	2.20	1.79 - 2.20	2009	N/A	Naturally present in the environment.
Microbial Contaminants							
Turbidity[1] (NTU)	N/A	TT = .3	0.20	N/A	2009	100% of samples met turbidity limit	Soil runoff.
Inorganic Contaminants							
Copper (ppm)	1.3	AL = 1.3	0.127	N/A	2007	No sites exceeded the Action Level	Corrosion of household plumbing systems; Erosion of natural deposits.
Lead[2] (ppb)	15	AL = 15	7.65	N/A	2007	One site exceeded the Action Level	Corrosion of household plumbing systems; Erosion of natural deposits.
Nitrate-Nitrite (ppm)	10	10	0.16	N/A	2009	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Disinfectants							
Chloramine (ppm)	MRDLG = 4	MRDL = 4.0	3	2.80 - 3.40	2009	No	Water additive used to control microbes.
Disinfection By-Products							
Total Haloacetic Acids (ppb)	N/A	60	13	8.8 - 15.76	2009	No	By-product of drinking water disinfection.
Total Trihalomethanes (ppb)	N/A	80	8	6.1 - 8.85	2009	No	By-product of drinking water disinfection.
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.

TABLE OF DETECTED UNREGULATED CONTAMINANTS[3]

Alkalinity, Carbonate (ppm)	N/A	N/A	1	ND - 1	2009	N/A	Natural erosion, plant activities, and certain industrial waste discharges.
Bicarbonate as HCO_3 (ppm)	N/A	N/A	179	167 - 179	2009	N/A	Natural erosion, plant activities, and certain industrial waste discharges.

[1] 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.

[2] 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. Southwest Water Authority 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. Infants or children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

[3] 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. Testing was also performed on 10 additional unregulated contaminants during 2009 and none of these contaminants were detected. To obtain information about these tests you may contact Ken Knight, Water Treatment Plant Operator (701-225-9149) or Sandy Burwick, CFO/Office Administrator (1-888-425-0241) or e-mail us at swa@swwater.com.

Southwest Water Authority does not discriminate on the basis of race, color, national origin, sex, religion, age, marital status or disability in employment or the provision of services.