

Annual Drinking Water Quality Report

City of Beach, North Dakota

2016

We're very pleased to provide you with this year's Annual Drinking Water Quality Report. We want to keep you informed about the excellent water and services we have delivered to you over the past year. Our goal is to provide you with a safe and dependable supply of drinking water.

The information contained in this report is from the test results of the Southwest Water Authority (SWA) which manages the facility that treats Southwest Pipeline Project (SWPP) water. The SWA takes Missouri River Water from Lake Sakakawea. This is a surface water source. The intake is about 86 miles northeast of Dickinson. From the intake, the water is pumped to the Zap Reservoirs and then flows by gravity to the Dodge pump station where chlorine and ammonia are added to form chloramines. The job of chloramines is to kill disease producing bacteria and viruses in the water. The water then travels to the Richardton reservoir and pump station. Sodium permanganate is added at the Richardton pump station when offensive tastes and odors are present due to changes in water quality that may have been attributed to lake turnover, variations in lake level, spring runoff, algae, and other factors. From the Richardton pump station the water is pumped to the Dickinson reservoir and then flows by gravity to the Water Treatment Plant in Dickinson where it is treated using the following processes:

- *Clarifying 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.

As part of a nationwide program, the North Dakota Department of Health 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. If you have any questions about this report or concerning your water utility, please contact Kimberly Nunberg, City Auditor at 872-4103. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings held on the first and third Monday of every month at 7:00 p.m. If you are aware of non-English speaking individuals who need help with the appropriate language translation of this report, please call Kimberly Nunberg, City Auditor at 872-4103.

The city of Beach would appreciate it if large volume water customers would please post copies of the year's Annual Drinking Water Quality 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.

Beach routinely monitors for contaminants in your drinking water according to Federal and State laws. The following table shows the results of our monitoring for the period of January 1st to December 31st, 2016.

As authorized and approved by EPA, the state has reduced monitoring requirements for certain contaminants to

less often than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of our data (e.g., for organic or inorganic contaminants,), though representative is more than one year old.

The sources of drinking water (both tap 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:

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, industrial or domestic wastewater discharges, oil production, mining or farming.

Pesticides and herbicides, which 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.

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

In the following table you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

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 2016. North Dakota 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.

N/A – Not Applicable **N/D** – Not Detected **NTU** – Nephelometric Turbidity Unit

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 (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in \$10,000.

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.

TEST RESULTS FOR BEACH, NORTH DAKOTA
TABLE OF DETECTED REGULATED CONTAMINANTS

Contaminant (units)	અખોઝા	અખોઝ	અંગેંડ કાર્બોન્યૂલાસ	કરોનાર્સ એવડન	થાંગ કવૈન	અંગેંડસવુંધારો	જુહી ગોખડે>ઓવુલાર
Total Organic Carbon (TOC) Removal							
Alkalinity (ppm) Source Water	N/A	N/A	174	163-174	2016	N/A	Natural erosion, plant activities, and certain industrial waste discharges.
Total Organic Carbon Source Water (ppm)	N/A	TT	4.47	2.96-4.47	2016	N/A	Naturally present in the environment
Total Organic Carbon Finished Water (ppm)	N/A	TT	2.88	1.99-2.88	2016	N/A	Naturally present in the environment
Microbial Contaminants							
Turbidity (1) (NTU)	N/A	TT=.3	.18	N/A	2016	100% of samples met turbidity limit	Soil runoff
Inorganic Contaminants							
Barium (ppm)	2	2	0.0126	N/A	2016	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Copper (ppm)	1.3	AL=1.3	0.0977 90 th percentile	N/A	2014	No	Corrosion or household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Fluoride (ppm)	4	4	0.92	N/A	2016	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate + Nitrite (ppm)	10	10	0.04	N/A	2016	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Lead (ppb)	0	AL=15	4.28* 90 th percentile	N/A	2014	No	Corrosion of household plumbing systems; erosion of natural deposits
Disinfectants							
Chloramines (ppm)	MRDLG =4	MRDL =4.0	2.6	1.25-2.85	2016	No	Water additive used to control microbes
Stage 2 Disinfection Byproducts (TTHM/HAA5)							
HAA5 (ppb)	N/A	60	9	N/A	2016	No**	Byproduct of drinking water disinfection
TTHM (ppb)	N/A	80	7	N/A	2016	No**	Byproduct of drinking water disinfection

*One sample site exceeded the Action Level in 2014

TEST RESULTS FOR BEACH, NORTH DAKOTA

TABLE OF DETECTED UNREGULATED CONTAMINANTS (2)

Contaminant (units)	અંગેંધ	અંગે	અંગણ	ક્રોનાંસ શાબુદ્ધ	થણો કવૈન	અંગણસવૃષ્ટાં ધોવોનિ	અંગેંધ>અંગણ>અંગેંધ
Alkalinity, Total (ppm)	N/A	N/A	5	ND-5	2016	N/A	N/A
Bicarbonate as HCO (3) (ppm)	N/A	N/A	212	87-212	2016	N/A	N/A
Calcium (ppm)	N/A	N/A	36.8	N/A	2016	N/A	N/A
Chloride (ppm)	N/A	N/A	13.8	N/A	2016	N/A	N/A
Conductivity @25 C (umho/cm)	N/A	N/A	621	N/A	2016	N/A	N/A
Hardness, Total (as CaCo3) (ppm)	N/A	N/A	155	N/A	2016	N/A	N/A
Magnesium (ppm)	N/A	N/A	15.2	N/A	2016	N/A	N/A
pH (pH)	N/A	N/A	8.76	N/A	2016	N/A	N/A
Potassium (ppm)	N/A	N/A	4.4	N/A	2016	N/A	N/A
Sodium (ppm)	N/A	N/A	71.8	N/A	2016	N/A	N/A
Sodium Adsorption Ratio (obsvns)	N/A	N/A	2.51	N/A	2016	N/A	N/A
TDS (ppm)	N/A	N/A	391	N/A	2016	N/A	N/A

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 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.

Source Water Microbiological Monitoring

SWA has a program of testing its untreated water supply for Cryptosporidium, Giardia and E. Coliform as part of Round 2 of the Long Term 2 Enhanced Surface Water Treatment Rule.

- Cryptosporidium is a microbial parasite found in surface water throughout the U.S. Although filtration removes Cryptosporidium, the most commonly used filtration methods cannot guarantee 100 percent removal. SWA monitoring did not detect any presence in the source water.
- Giardia is a microbial parasite commonly found in water. SWA monitoring did not detect any presence in the source water.
- Filtration, as used at the Dickinson Water Treatment Plant, effectively removes Giardia.
- E. Coliform is a pathogenic bacteria commonly found in surface water and originates in the intestinal tract of warm blooded animals. Our monitoring did not detect any presence in the source water.

To obtain information about these test you may contact Ken Knight Water Treatment Plant Operator (701-225-9149) or Sandra Burwick SWA CFO/Office Administrator at 1-888-425-0241 or e-mail at swa@swwater.com.

Unregulated contaminants are those for which the EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted.

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 the 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).

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/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

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 Beach 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 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 at <http://www.epa.gov/safewater/lead>. We're proud that your drinking water meets or exceeds all Federal and State requirements. We have learned through our monitoring and testing that some contaminants have been detected. The EPA has determined that your water IS SAFE at these levels.

Thank you for allowing us to provide your family with clean, quality water this year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit all of our customers. These improvements sometimes require rate structure adjustments. Please feel free to call our office if you have any questions regarding this report. We work diligently to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life, and our children's future.