

# Annual Drinking Water Quality Report

## Lincoln, North Dakota

### 2017

We are very pleased to provide you with this year's *Annual Drinking Water Quality Report*. This report is designed to inform you about the safe clean 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. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water. Our water source is purchased surface water from the city of Bismarck. The city of Bismarck treats surface water drawn from the Missouri River.

The North Dakota Department of Health has prepared a Source Water Assessment for our water and is on file with the city of Bismarck.

The city of Bismarck, in cooperation with the North Dakota Department of Health, has completed the delineation and contaminant/land use inventory elements of the North Dakota Source Water Protection Program. Based on the information from these elements, the North Dakota Department of Health has determined that our source water is "*moderately susceptible*" to potential contaminants. No significant sources of contamination have been identified.

If you have any questions about this report or concerning your water utility, please contact Rob Dickson, City PWS at 701-258-7969. 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. They are held on the first Thursday following the first Thursday day of every month at 7:00 PM in the Lincoln City Hall. If you are aware of non-English speaking individuals who need help with the appropriate language translation, please call Rob at the number listed above.

The city of Lincoln would appreciate it if large volume water customers would please post copies of the *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.

The city of Lincoln routinely monitors for contaminants in your drinking water per Federal and State laws. The following table shows the results of our monitoring for the period of January 1<sup>st</sup> to December 31<sup>st</sup>, 2017. 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 inorganic contaminants], though representative, is more than one-year-old.

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 EPA's Safe Drinking Water Hotline (800-426-4791).

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

**Pesticides and herbicides**, which come from a variety of sources such as agriculture, urban storm water 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 storm water runoff and septic systems.

**Radioactive contaminants**, which can be naturally-occurring or be the result of oil and gas production and mining activities.

To ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations which limit the number 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:

**Not applicable (NA), No Detect (ND)**

**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.

**Parts per billion (ppb) or Micrograms per liter ( $\mu\text{g/l}$ )** - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

**Picocuries per liter (pCi/l)** - Pico curies per liter is a measure of the radioactivity in water.

**Action Level (AL)** - the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

**Treatment Technique (TT)** - A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

**Maximum Contaminant Level** - The "Maximum Allowed" (MCL) is 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** - The "Goal" (MCLG) is 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 (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 (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.

## 2017 Test Results for the cities of Lincoln & Bismarck, North Dakota

<u>Contaminant</u>	<u>MCLG</u>	<u>MCL</u>	<u>Level Detected</u>	<u>Units</u>	<u>Range</u>	<u>Date (year)</u>	<u>Violation Yes/No</u> <u>Other Info</u>	<u>Likely Source of Contamination</u>
<b>Inorganic Contaminants</b>								
Barium	2	2	0.0516	ppm	N/A	2017	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Cyanide	200	200	66	ppm	N/A	2015	No	Discharge from steel/metal factories; discharge from plastic & fertilizer factories
Fluoride	4	4	0.648	ppm	N/A	2017	No	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate-Nitrite	10	10	0.03	ppm	N/A	2017	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
<b>Synthetic Organic Contaminants including Pesticides &amp; Herbicides</b>								
Pentachlorophenol	0	1	0.03	ppb	N/A	2017	No	Discharge from wood preserving factories
<b>Microbiological Contaminants</b>								
Turbidity**	NA	TT=3	0.11	NTU	N/A	2017	100% of samples met Turbidity Limits	Soil runoff
<b>Lead/Copper</b>								
Copper	N/A	AL=1.3	0.0248 90 <sup>th</sup> % Value	ppm	N/A	2017	0 sites exceeded AL	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead*	N/A	AL=15	No Detect 90 <sup>th</sup> % Value	ppb	N/A	2017	0 sites exceeded AL	Corrosion of household plumbing systems, erosion of natural deposits
<b>Stage 2 Disinfection By-Products (System-Wide)</b>								
HAA5 System-Wide	N/A	60	12	ppb	5.96 to 16.50	2017	No	By-product of drinking water chlorination
TTHM System-Wide	N/A	80	30	ppb	13.6 to 33.78	2017	No	By-product of drinking water chlorination
<b>Disinfectants</b>								
Chloramines	MRDLG =4	MRDL =4.0	2.0	ppm	1.38 to 3.1	2017	No	Water additive used to control microbes
<b>Total Organic Carbon Removal</b>								
Alkalinity, Source	N/A	N/A	262	Mg/l	214.00 to 262.00	2017	No	Natural erosion, certain plant activities, certain industrial wastewater discharges
Carbon, Total Organic (TOC) - Finished	N/A	N/A	2.6	Mg/l	2.10 to 2.60	2017	No	Naturally present in the environment
Carbon, Total Organic (TOC)-Source	N/A	N/A	8.2	Mg/l	4.50 to 8.20	2017	No	Naturally present in the environment

<b>Unregulated Contaminants</b>								
Alkalinity, Carbonate	N/A	N/A	7	ppm	N/A	2017	No	N/A
Bicarbonate as HCO <sub>3</sub>	N/A	N/A	56	ppm	N/A	2017	No	N/A
Calcium	N/A	N/A	48.4	ppm	N/A	2017	No	N/A
Chloride	N/A	N/A	32.8	ppm	N/A	2017	No	N/A
Conductivity @ 25 UMHOS/CM	N/A	N/A	867	umho/cm	N/A	2017	No	N/A
Hardness, Total (AS CAC03)	N/A	N/A	133	ppm	N/A	2017	No	N/A
Magnesium	N/A	N/A	19.3	ppm	N/A	2017	No	N/A
Nickel	N/A	N/A	0.00114	ppm	N/A	2017	No	N/A
Orthophosphate	N/A	N/A	1.21	ppm	0.74 to 1.21	2017	No	N/A
pH	N/A	N/A	9.33	pH	N/A	2017	No	N/A
Potassium	N/A	N/A	4.0	ppm	N/A	2017	No	N/A
Sodium	N/A	N/A	114	ppm	N/A	2017	No	N/A
Sodium Adsorption Ratio	N/A	N/A	4.3	obsvns	N/A	2017	No	N/A
Sulfate	N/A	N/A	308	ppm	293 to 308	2017	No	N/A
TDS	N/A	N/A	535	ppm	N/A	2017	No	N/A
Temperature (Centigrade)	N/A	N/A	29.6	C	6.5 to 29.6	2017	No	N/A
Zinc	N/A	N/A	0.0029	ppm	N/A	2017	No	N/A
<b>Radioactive Contaminants</b>								
Gross Alpha, Including RA, Excluding RN & U	15	15	No Detect	pCi/l	N/A	2017	No	Erosion of natural deposits
Radium, Combined (226, 228)	N/A	5	1.17	pCi/l	N/A	2017	No	Erosion of natural deposits
Uranium, Combined	N/A	30	No Detect	ppb	N/A	2017	No	Erosion of natural deposits

### Surface Water Treatment Rule Monitoring Data:

Lowest Monthly Percentage of Samples Meeting Turbidity Limits = 100%

Highest Single Measurement = 0.11

### Source Water Microbiological Monitoring:

The city of Bismarck has a program for its untreated water supply for Cryptosporidium, Giardia, and E. Coli as part of Round 2 of the Long Term Stage 2 Enhanced Surface Water Treatment Rule.

- In 2017, nine (9) samples were collected from the horizontal collector well for Cryptosporidium analysis and there was no detection. 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% removal.
- In 2017, nine (9) samples were collected from the horizontal collector well for Giardia analysis and there was no detection. Giardia is a microbial parasite commonly found in surface water. Although filtration removes Giardia, the most commonly used filtration methods cannot guarantee 100% removal.
- In 2017, nine (9) samples were collected from the horizontal collector well for E-Coli analysis and there was no detection. E-Coli is an indicator bacterium commonly found in surface water and originates in the intestinal tract of warm blooded animals, some types of E-Coli bacteria are a pathogenic. It is effectively removed by filtration and destroyed by chlorination and was not detected in the finished water or in the distribution system through our Coli Form/ E-Coli bacterial testing program.

EPA requires monitoring of over 80 drinking water contaminants. Those contaminants listed in the tables above are the only contaminants detected in your drinking water.

\*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 Lincoln 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>.

\*\*Turbidity is a measure of the cloudiness of the water. The city of Bismarck monitors it because it is a good indicator of the effectiveness of their filtration system. 100% of samples met turbidity limits.

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

MCL's are set at very stringent levels. To understand the possible health effects described for many regulated contaminants, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

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/Center for Disease Control and Prevention (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).

Please call Rob Dickson, City PWS at 701-258-7969 if you have questions concerning your city's water system.

The city of Lincoln works 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.

