CONTAMINATION SOURCES

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.

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.

The North Dakota Department of Health has prepared a Source Water Assessment for the city of Mandan's surface water intake and has classified Mandan's water system as moderately susceptible to potential contaminant sources. It should be noted that historically, the city has effectively treated its source water to meet drinking water standards and the risk for potential contamination is low. Information about the Source Water Assessment is available by calling 701-225-9149 or 888-425-0241, or e-mail us at swa@swwater.com.

About SWA's Quality Water

At SWA, our highest priority is your family's health where drinking water is concerned. With that thought in mind, SWA is pleased to report that this water system was in compliance with all drinking water regulations in 2017. SWA wants all of our valued customers to be informed about this water utility, therefore if you have any questions about this report or any other concerns, please contact Ken Knight, Water Treatment Plant Operator or Sandy Burwick, CFO/Office Administrator at 888-425-0241 or e-mail us at swa@swwater.com.

In order to allow individuals who consume SWA's drinking water, but who do not receive water bills, to learn about this water system, we would appreciate it if large volume water customers would post copies of this report in conspicuous locations or distribute them to tenants, residents, patients, students, and/or employees.

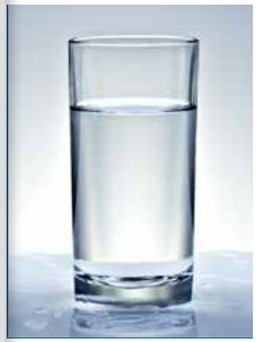
Source and Treatment

The water source for the Crown Butte Pocket is surface water obtained from the Missouri River. The water is treated by the Mandan Water Treatment Plant using the following processes: clarification, softening, filtration, fluoridation, and disinfection. The Missouri West Water System purchases water from the city of Mandan for delivery to their customers. SWA then purchases water from Missouri West Water System for delivery to you, our valued customer.

Drinking Water Safety

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 EPA's Safe Drinking Water Hotline (800-426-4791). More information about drinking water is available on EPA's website 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).



We are pleased to present this 2017 Water Quality Report (CCR) which demonstrates that our water quality continues to meet and/or exceed the strict water quality standards established by the EPA.

Southwest Water Authority

www.swwater.com

Learn More

Visit our website at **www.swwater.com** to learn more about water quality. You are welcome to attend any of SWA's regularly scheduled meetings, which are generally held on the first Monday of each month. If you are aware of non-English speaking individuals who need assistance with the appropriate language translation, please contact SWA at the number listed above. If you are interested in attending or would like to request agenda time, please contact SWA at the number listed above for information on time and location.

Southwest Water Authority

2017 Drinking Water Quality Consumer Confidence Report

Crown Butte Pocket

Southwest Water Authority's (SWA) vision is "People and Businesses Succeeding with Quality Water." We take our responsibility of providing southwest North Dakota with a reliable supply of quality drinking water very seriously. Working with the North Dakota Department of Health and the Environmental Protection Agency (EPA), we place drinking water safety at the top of our priorities. Our drive is to achieve a level of excellence that is unsurpassed in our field. To that end, we present our 12th Annual Drinking Water Report. This report will provide information to our customers about the quality of our drinking water. It contains a table of water quality data, definitions of terms, specific language requirements, and other information we hope you will find useful and educational.

What is a Consumer Confidence Report (CCR)?

This CCR is our annual water quality report that all community water systems are required to provide to their customers. It is based on the 1996 Amendments to the EPA's Safe Drinking Water Act and the right to know provisions of that Act. As a customer of Southwest Water Authority, it gives you the opportunity to review your water quality annually. It also is provided to help you make informed choices about the water you drink. The report lets you know what, if any, contaminants are in the drinking water, and how they may affect your health.

SOUTHWEST PIPELINE PROJECT

DETECTED CONTAMINANTS

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 2017. 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 (AL) – The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Maximum Contaminant Level (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 (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 (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.

Most Probable Number per 100ml (MPN/100/ml) – The measure of particular particles in 100 milliliters of a water sample.

Oocysts/Liter – The number of Cryptosporidium cysts per liter of sample.

Parts per billion (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) – 1 ppm is equivalent to adding 1 pound of a contaminant to 999,999 pounds of water (about 120,000 gallons).

Picocuries per liter (pCi/l) – A measure of radioactivity.

Treatment Technique (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

Southwest Water Authority

Southwest Pipeline Project

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CITY OF MANDAN'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	TT	176	152-176	2017	N/A	Natural erosion, plant activities, and certain industrial waste discharges
Total Organic Carbon (ppm) Source Water	N/A	TT	4.60	3.90-4.60	2017	N/A	Naturally present in the environment
Total Organic Carbon (ppm) Finished Water	N/A	TT	2.70	2.20-2.70	2017	N/A	Naturally present in the environment
Microbial Contaminants							
Turbidity[1] (NTU)	N/A	TT = .3	0.07	N/A	2017	100% of samples met turbidity limit	Soil runoff
Radioactive Contaminants							
Gross Alpha, including Ra, excluding Rn & U (pCi/l)	15	15	2.91	N/A	2013	No	Erosion of natural deposits
Uranium, Combined (ppb)	0	30	0.14	N/A	2013	No	Erosion of natural deposits
Inorganic Contaminants							
Barium (ppm)	2	2	0.0111	N/A	2016	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride (ppm)	4	4	0.74	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	0.03	N/A	2017	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

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
Inorganic Contaminants							
Copper (ppm)	1.3	AL = 1.3	0.091	N/A	2016	No sites exceeded the Action Level	Corrosion of household plumbing systems; Erosion of natural deposits
Lead[2] (ppb)	0	AL = 15	ND	N/A	2016	No sites exceeded the Action Level	Corrosion of household plumbing systems; Erosion of natural deposits
Disinfectants							
Chloramines (ppm)	MRDLG = 4	MRDL = 4.0	2.30	2.10-2.50	2017	No	Water additive used to control microbes
Disinfection Byproducts							
Total Haloacetic Acids (ppb)	0	60	15	10.95-17.24	2017	No	By-product of drinking water disinfection
Total Trihalomethanes (ppb)	0	80	39	31.52-39.31	2017	No	By-product of drinking water disinfection

[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.

Source Water Microbiological Monitoring

The city of Mandan conducted source water monitoring for Cryptosporidium, and E. coli as part of the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). The purpose of the LT2ESWTR is to protect public health from illnesses due to Cryptosporidium and other microbial pathogens. Cryptosporidium is a microbial pathogen found in surface water though out the U.S. Although filtration removes Cryptosporidium, the most commonly-used filtration methods cannot guarantee 100% safe removal. In accordance with this rule Cryptosporidium, and E. coli samples were taken monthly from January through December of 2017 from the raw water line and analyzed by certified laboratories. Results were used to determine "bin" classification, which determines whether further treatment for Cryptosporidium is needed.

Microbial Contaminant		
	Crytosporidium, oocysts/L	E. coli per 100ml
January 2017	<0.100	690
February 2017	<0.100	180
March 2017	<0.100	365
April 2017	<0.100	1
May 2017	<0.100	25
June 2017	<0.100	19
July 2017	<0.100	19
August 2017	<0.100	25.4
September 2017	<0.100	8.7
October 2017	<0.100	6.4
November 2017	0.100	21
December 2017	<0.100	12.4

The drinking water is monitored 365 days a year, 24/7 for its quality.

FIND US ON SOCIAL MEDIA

Southwest Water Authority

Southwest Pipeline Project