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 contaminant**, 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 classified Mandan’s water system as moderately susceptible to potential contaminant sources. 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 transplant, 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).

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.

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.

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.

Source and Treatment
The water source for the Tower Hill 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.

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**ETA**

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 Goal (MRDLG)** – The level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**MCLs** – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLs are enforceable standards.

**Micrograms per liter and parts per million**

- Picocuries per liter (pCi/l) – A measure of radioactivity.
- Parts per million (ppm) – A measure of the concentration of a contaminant to 999,999 pounds of water (about 120,000 gallons).
- Parts per billion (ppb) – A measure of the concentration of a contaminant to 999,999,999 pounds of water (about 120,000,000 gallons).

**Source Water Microbiological Monitoring**

- **Cryptosporidium, oocysts/L**: monitors the presence of Cryptosporidium, a single-celled parasite that can cause diarrhea and other gastrointestinal illnesses.
- **E. coli** – The presence of this indicator organism can suggest the presence of other pathogens.

**DETECTED CONTAMINANTS**

**CITY OF MANDAN’S TABLE OF DETECTED REGULATED CONTAMINANTS**

<table>
<thead>
<tr>
<th>Contaminant (units)</th>
<th>MCLG</th>
<th>MCL</th>
<th>Level Detected</th>
<th>Detection Range</th>
<th>Test Date</th>
<th>Exceedance or Violation?</th>
<th>Major Sources in Drinking Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbidity1 (NTU)</td>
<td>N/A</td>
<td>TT</td>
<td>176</td>
<td>152-176</td>
<td>2017 N/A</td>
<td>Natural erosion, plant activities, and certain industrial waste discharges</td>
<td></td>
</tr>
<tr>
<td>Total Organic Carbon (TOC) Removal</td>
<td>N/A</td>
<td>TT</td>
<td>4.60</td>
<td>3.90-4.60</td>
<td>2017 N/A</td>
<td>Naturally present in the environment</td>
<td></td>
</tr>
<tr>
<td>Finished Water Total Organic Carbon (ppm)</td>
<td>TT</td>
<td>2.70</td>
<td>2.20-2.70</td>
<td>2017 N/A</td>
<td>Naturally present in the environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cryptosporidium, oocysts/L</td>
<td>TT+3</td>
<td>0.07</td>
<td>N/A</td>
<td>2017 100% of samples meet turbidity limit Soil runoff</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disinfectants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum (ppb)</td>
<td>0</td>
<td>30</td>
<td>0.14</td>
<td>N/A</td>
<td>2013 N/A</td>
<td>Erosion of natural deposits</td>
<td></td>
</tr>
<tr>
<td>Uranium, Combined (ppb)</td>
<td>0</td>
<td>10</td>
<td>0.03</td>
<td>N/A</td>
<td>2017 N/A</td>
<td>Erosion of natural deposits</td>
<td></td>
</tr>
</tbody>
</table>

**INFECTIOUS CONTAMINANTS**

- **Drinking Water Source (DDW)**: includes all drinking water systems, including those served by public and non-profit private systems.
- **Water Treatment System (WTS)**: includes all components of the water treatment system, including raw water sources, mixing, filtration, disinfection, and distribution systems.
- **Source Water**: refers to water that is captured and treated for human consumption.
- **Finished Water**: refers to water that is disinfected and distributed for human consumption.

**Inorganic Contaminants**

- **Barium (ppm) 1.3 AL = 1.3 0.089 N/A 2016 No** Discharge of drilling wastes; Discharge from fertilizer and aluminum factories.
- **Fluoride (ppm) 10 10 0.74 N/A 2016 No** Water additive which promotes strong teeth. Discharge from fertilizer and aluminum factories.
- **Lead (ppb) 5 5 0.008 N/A 2016 No** 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’S TABLE OF DETECTED REGULATED CONTAMINANTS**

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<table>
<thead>
<tr>
<th>Contaminant (units)</th>
<th>MCLG</th>
<th>MCL</th>
<th>Level Detected</th>
<th>Detection Range</th>
<th>Test Date</th>
<th>Exceedance or Violation?</th>
<th>Major Sources in Drinking Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper (ppm)</td>
<td>1.3</td>
<td>AL = 1.3</td>
<td>0.089</td>
<td>N/A</td>
<td>2016 No</td>
<td>No</td>
<td>Corrosion of household plumbing systems; Erosion of natural deposits</td>
</tr>
<tr>
<td>Lactate (ppb)</td>
<td>0</td>
<td>AL = 15</td>
<td>ND</td>
<td>N/A</td>
<td>2016 No</td>
<td>No</td>
<td>Corrosion of household plumbing systems; Erosion of natural deposits</td>
</tr>
<tr>
<td>Disinfectants</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chloramines (ppm)</td>
<td>MCLG = 4</td>
<td>MRLD = 4.0</td>
<td>2.1</td>
<td>1.8 - 2.2</td>
<td>2017 No</td>
<td>Water additive used to control microorganisms</td>
<td></td>
</tr>
</tbody>
</table>

**Disinfection Byproducts**

- **Total Halocarbon Acids (ppb) 0 60 15 11.57-19.41 | 2017 No | Bay product of drinking water disinfection |
- **Total Trihalomethanes (ppb) 0 60 36 28.18-44.64 | 2017 No | Bay 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.

**Source Water Microbiological Monitoring**

- **Cryptosporidium**: a single-celled parasite that can cause diarrhea and other gastrointestinal illnesses.
- **E. coli**: an indicator organism that can suggest the presence of other pathogens.

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