

# DRINKING WATER QUALITY REPORT FOR 2013

## City of Mandan, North Dakota

### *To the Water Users of Mandan:*

The City of Mandan has generated this report in response to a regulation implemented by the Environmental Protection Agency (EPA). The regulation mandates that each community water system in the United States (such as the one the City of Mandan owns and operates) prepare, on an annual basis, a report that provides its customers with information regarding the quality of water distributed to its customers. The following is the Sixteenth report generated for the City of Mandan's system.

This report summarizes Mandan's water quality data for the monitoring period ending December 31, 2013. Additionally, this report provides other pertinent information regarding the potential health effects associated with detected contaminants, if any. As a requirement for this report, definitions of terms, specific language, a table of water quality data and other relevant information is included. We hope you will find the information in this and subsequent annual reports useful and informative.

The City of Mandan obtains water from the Missouri River. River water is made safe for drinking at the Mandan Water Treatment Plant. At the plant, river water is pumped to a pretreatment basin where objectionable tastes and odors are treated and suspended sediments are removed. After pretreatment, the water passes through one of two treatment trains in the original 1958 or the 1985 plant addition. Each treatment train consists of softening, clarification, and stabilization, followed by disinfection and filtration. On average, the plant produces approximately 2.67 million gallons per day (MGD) and has a peak capacity of approximately 12 MGD.

The sources of drinking water (both tap and bottled water) include rivers, lakes, streams, pond, 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 the source water include:

**Microbial Contaminants**, such as viruses and bacteria, which may come from sewerage 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 runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

**Inorganic Contaminants**, such as salts and metals, which can be naturally-occurring or result from urban storm water 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 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.

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 (EPA's) Safe Drinking Water Hotline (800-426-4791). In order to ensure that tap water is safe to drink, EPA prescribes regulations that 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/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).

In April of 2008 the City of Mandan began monthly testing of our source water for the presence of cryptosporidium. Two years of source water monitoring for public water systems was required under the Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) implemented by the EPA in 2003. Cryptosporidium is a microbial parasite which is found in surface water throughout the United States. Although filtration removes cryptosporidium, the most commonly used filtration methods cannot guarantee 100 percent removal. Of the 24 samples of source water analyzed, only 2 samples were found to contain cryptosporidium, with an average analytical result value of 0.161 oocysts per liter.

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 Mandan 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 with 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>.

EPA requires monitoring of over 80 drinking water contaminants. Those contaminants listed in the Table of Detected Contaminants were the only ones detected in your drinking water during the most recent monitoring period. As authorized and approved by the 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. Consequently, some of our data, though representative, is more than one year old.

North Dakota Source Water Assessment Program has classified Mandan's water system as moderately susceptible to potential contaminants. It should be noted that historically the city has effectively treated its source water to meet drinking water standards. A copy of the assessment report can be reviewed at the Water Treatment Plant.

Some of the information provided in this report is complex. If you have any questions, concerns, or would like additional information, you can contact Duane Friesz, at (701)-667-3275 between 8 a.m. and 4:30 p.m. Monday through Friday. Those wishing to participate in decisions concerning the quality of our water can be scheduled to appear at City Commission meetings by calling Mr. Friesz at the above number. Regular Commission meetings begin at 5:30 p.m. and are held the 1<sup>st</sup> and 3<sup>rd</sup> Tuesday of every month at Mandan City Hall, located at 205 2<sup>nd</sup> Avenue Northwest. These meetings are also televised on community access T.V. channel 2.

The City of Mandan would appreciate if large volume customers would post copies of this report in conspicuous locations or distribute them to tenants, residents, patients, students, and/or employees, so individuals who do not receive a water bill can learn about our water. If you are aware of any non-English speaking individuals who need help with the appropriate language translation, please contact us at the number listed above.

## Testing Results for Regulated Contaminants

Contaminants (Units)	MCLG	MCL	High Compliance Level	Regulation Exceeded/ Violation	Range of Detections	Year Detected	Major Sources of Contaminant in Drinking Water
<b>Microbial Contaminants</b>							
Turbidity (NTU)*	NA	TT = 0.3	0.18	No	0.023 to 0.18	2013	Soil runoff
<b>Inorganic Contaminants</b>							
Copper (ppm)**	1.3	AL = 1.3	No detect	No	NA	2011	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppb)**	0	AL = 15	7	No	NA	2011	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Barium (ppm)	2	2	.0163	No	NA	2010	Discharge of drilling waste; Discharge from metal refineries; Erosions of natural deposits
Fluoride (ppm)	4	4	1.17	No	NA	2010	Erosions of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate – Nitrite (ppm)	10	10	0.07	No	NA	2013	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
<b>Stage 1 Disinfections Byproducts (TTHM/HAA5)</b>							
Stage 1 Range only covers data from 1/1/2013 – 9/30/2013 while the highest compliance value is a running annual average covering data back a year from date listed.							
Total Haloacetic Acids (ppb)	NA	60	16	No	11.82 to 13.56	2013	By-product of drinking water chlorination
Total Trihalomethanes (ppb)	NA	80	40	No	19.83 to 26.65	2013	By-product of drinking water chlorination
<b>Disinfectants</b>							
Chloramine (ppm)	MRDLG 4.0	MRDL 4.0	2.3	No	2.1 to 2.4	2013	Water additive used to control microbes
<b>Organic Compounds</b>							
Alkalinity, Total (ppm)	NA	NA	168	No	152 to 168	2013	
Carbon, Total Organic (TOC) – Finished (ppm)	NA	NA	3.0	No	2.30 to 3.0	2013	Naturally present in the environment
Carbon, Total Organic (TOC) – Source (ppm)	NA	NA	5.1	No	4.00 to 5.10	2013	Naturally present in the environment
<b>Radioactive Contaminants</b>							
Gross Alpha, including RA excluding RN & U (pCi/l)	15	15	2.91	No	NA	2013	Erosion of natural deposits
Uranium Combined (ppb)	NA	30	0.14	No	NA	2013	Erosion of natural deposits

**(MCLG):** Maximum Contaminant Level Goal. 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

**(MCL):** Maximum Contaminant Level. 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

**(AL):** Action Level. The concentration of a contaminant, which, if exceeded, triggers a treatment or other requirement, which a water system must follow.

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

**Highest Compliance Level:** The highest level of that contaminant used to determine compliance with a National Primary Drinking Water Regulation.

**Range of Detections:** The lowest and highest detected concentrations of a contaminant recorded during the required monitoring period.

**(ppm):** Parts per Million. A common unit of measure used to express concentrations of substances contained within liquids

**(ppb):** Parts per Billion. A common unit of measure used to express concentrations of substances contained within liquids.

**(NTU):** Nephelometric Turbidity Units. A unit of measure used to express turbidity.

**(pCi/l):** Picrocuries Per Liter. A unit of measure used to express radioactivity.

**(NA):** Not Applicable

**(MRDLG):** Maximum Residual Disinfectant Level Goal: 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 use of disinfectants to control microbial contaminants.

**(MRDL):** Maximum Residual Disinfectant Level: The highest level of a disinfectant allowed in drinking water. This is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

\*Turbidity is an indirect measure of suspended material (such as clay and silt) in water. Turbidity is continuously measured during plant operation to monitor the performance/effectiveness of our filtration system.

\*\*Copper and lead are tested at thirty (30) locations throughout the distribution system. The Compliance Detection Level indicates the 90<sup>th</sup> percentile value, or the value that 90 percent of the test samples are below. One sample site exceeded the action level.

*As the data presented in the table indicates, the drinking water provided by the City of Mandan is safe and well within all State and Federal requirements. Our water quality professionals live with their families in the same neighborhoods that you do. When they turn on the faucet, they expect what you expect – a reliable supply of safe, high-quality drinking water.*

The City of Mandan was selected by EPA to sample for 21 unregulated contaminants during 2013. Samples were taken one time from both the Water Treatment Plant (WTP) and from Maximum Resident Time (MRT) sampling points.

Unregulated Containments 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 waters and whether a future regulation is warranted. Should you have questions contact the Mandan Water Treatment Plant at 701-667-3275.

The following unregulated contaminants were the only contaminants detected during the sampling. Results are from the Water Treatment Plant (WTP) and Maximum Residence Time (MRT) sampling points in our system.

## Testing results for Unregulated Contaminants

Unregulated Contaminant	Minimum Reporting Level (ppb)	WTP sampling point (ppb)	MRT sampling point (ppb)	Range of detection (ppb)
Vanadium	0.20	0.79	0.70	0.70 to 0.79
Strontium	0.30	320	310	310 to 320
Molybdenum	1.0	2.5	2.4	2.4 to 2.5
Chromium***	0.20	0.43	0.49	0.43 to 0.49
Hexavalent Chromium ***	0.030	0.40	0.42	0.40 to 0.42

(ppb): Parts per Billion. A common unit of measure used to express concentrations of substances contained within liquids.

\*\*\* The Maximum Contaminant Level (MCL) set by the United States Environmental Protection Agency (EPA) is currently 100 ppb for total Chromium which includes Hexavalent Chromium.