2019 Water Quality Report

The City of Fargo Water Treatment Plant is issuing this report to inform customers about the quality of water produced and distributed in 2019.

If you are a large-volume user, please distribute a copy of this Water Quality Report to consumers who do not receive a bill.

If you have questions about Fargo drinking water, or if you are aware of non-English speaking individuals who need help with the appropriate language translation, please contact the Water Treatment Plant at 701-241-1469.

If you would like opportunities for public participation in decisions that affect water quality, please attend City Commission meetings, which are held every other Monday at 5 p.m. Please visit the City of Fargo web site for exact meeting dates.

www.fargond.gov/city-government/departments/city-commission

Please observe Fargo's odd/even lawn watering schedule from Memorial Day to Labor Day to help reduce our peak demand.

Troy B. Hall
Water Utility Director

Brian A. Ward
WTP Superintendent

Fargo Water Treatment Plant
701-241-1469

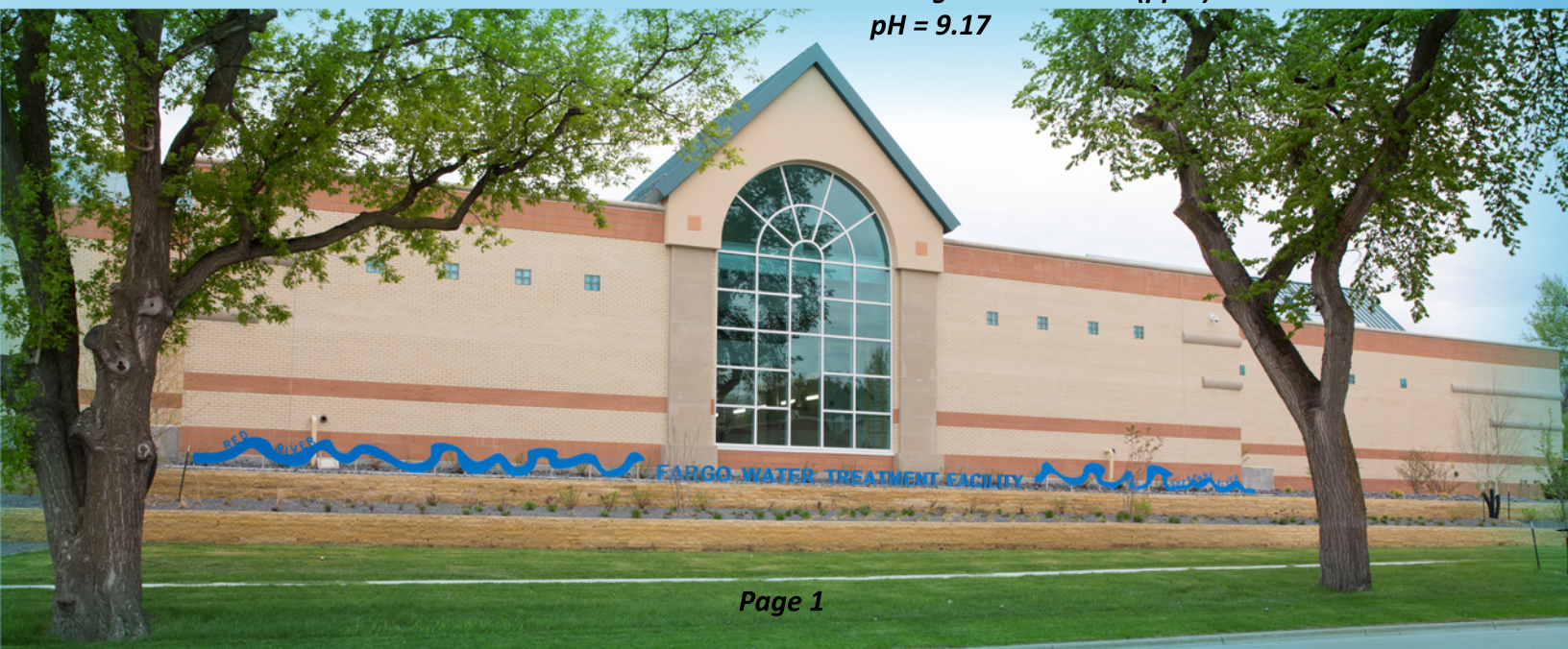
Aesthetic Water Quality Averages for 2019

Total Hardness = 124 (ppm) or 7.25 grains / gallon

Total Dissolved Solids = 352 (ppm)

Iron and Manganese = < 0.02 (ppm)

pH = 9.17



What You Need To Know About Drinking Water Regulations

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.

In order to insure 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. 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) or visiting their website.

https://www.epa.gov/ground-water-and-drinking-water

Before the City of Fargo delivers water to your home it is thoroughly tested. All regulatory testing is performed in certified laboratories. In addition, the Fargo Water Treatment Plant is staffed with Certified Operators and Environmental Laboratory Technicians who are monitoring and testing your water to insure that drinking water standards enforced by the North Dakota Department of Environmental Quality (NDDEQ) are maintained.

The Fargo water treatment plant complies with the EPA Safe Drinking Water Act by routinely testing for contaminants. The contaminants detected and values are listed in the Monitoring Results Tables. Certain contaminants require testing less than once per year. The concentrations of these contaminants are not expected to vary significantly from year to year. This data, while still representative of the water quality, is more than a year old and is also listed in the Monitoring Tables. In 2019, there were no contaminants that exceeded the Maximum Contaminant Level (MCL), which is the highest level of a substance allowed in drinking water as set forth by the EPA.

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 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.*

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).

Lead and Copper

The maximum allowable level for lead and copper is known as the Action Level (AL). This is the concentration which, if exceeded, triggers treatment or other requirements a water system must follow. Ninety percent of all samples tested must be below this concentration. During 2019, no sample site in the City of Fargo water distribution system tested above the (AL) for lead and copper.

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 Fargo Water Treatment Plant 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 (800-426-4791) or at: ***http://www.epa.gov/safewater/lead***

Lead and Copper

Substance (monitored at tap) (units) test date	AL	MCLG	90th Percentile	Sites Exceeding AL	Major source of contaminant
Copper (ppm) 7/23/2019	1.3	1.3	0.076	0 of 100 sites	Corrosion of household plumbing systems Erosion of natural deposits
Lead (ppb) 7/23/2019	15	0	3	0 of 100 sites	Corrosion of household plumbing systems Erosion of natural deposits

Microbial Contaminants

Turbidity	(TT) Treatment Technique	< 1.0 (NTU) (100%)	(MWTP) < 0.15 (NTU) (95%) (LSWTP) < 0.3 (NTU) (95%)	Level Detected (NTU)	Range (NTU)
(MWTP) Effluent	Ultra Filtration; Reverse Osmosis; Disinfection	100% of samples	100 % of samples	0.112 3/16/2019	0.037 to 0.112
(LSWTP) Effluent	Filtration; Disinfection	100% of samples	100 % of samples	0.264 8/23/2019	0.052 to 0.264

Turbidity *is a measure of water clarity monitored at the City of Fargo Water Treatment Plant. Certain treatment techniques (TT) are required to reduce the level in the drinking water. Regulations require turbidity to be < 0.15 NTU at the effluent of the Fargo Membrane Water Treatment Plant (MWTP) and < 0.30 NTU at the effluent of the Fargo Lime Softening Water Treatment Plant (LSWTP) 95% of the time and < 1.0 NTU 100% of the time. Turbidity has no health effects, but can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms such as bacteria, viruses, and parasites that can cause nausea, cramps, diarrhea and associated headaches.*

Instrumentation measuring effluent water quality parameters and turbidity

Substance (monitored at tap) (units) test date	MCL	MCLG	Highest Compliance Level	Major source of contaminant
Inorganic Contaminants				
Barium (ppm) 4/17/2018	2	2	0.0376	Discharge of drilling wastes; Discharge from metal refineries; Erosion of Natural Deposits
Fluoride (ppm) 4/17/2018	4	4	0.625	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories;
Nitrate - Nitrite (ppm) 5/13/2019	10	10	0.091	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Radioactive Contaminants				
Gross Alpha, Including RA, Excluding RN & U (pCi/l) 7/17/2018	15	15	2.44	Erosion of natural deposits
Radium, Combined (226, 228) (pCi/l) 7/17/2018	5	N/A	0.166	Erosion of natural deposits

Substance (monitored at tap) (units) test date	MCL	MCLG	Highest Compliance Level	Range	Major source of contaminant
Disinfectants					
Chloramine (ppm) 1/31/2019	MRDL 4.0	MRDLG 4.0	3.30	2.68 to 3.56	Water additive used to control microbes
Unregulated Contaminants					
Bromide (ppm) 1/31/2019	N/A	N/A	0.128	ND to 0.128	Discharge from oil and gas production and coal-fired steam electric power plants Erosion of natural deposits
Total Organic Carbon Removal					
Alkalinity - Source (ppm) 6/30/2019	N/A	N/A	279	114 to 279	A measure of the acid neutralizing capacity of water
Total Organic Carbon (TOC) - Finished (ppm) 11/30/2019	N/A	N/A	4.6	0.86 to 4.6	Naturally present in the environment
Total Organic Carbon (TOC) - Source (ppm) 12/31/2019	N/A	N/A	10.7	6.37 to 10.7	Naturally present in the environment
Disinfection Byproducts					
Bromate - Finished (ppb) 7/31/2019	10	0	2	ND to 8.5	By-product of drinking water disinfection
Haloacetic Acids (HAA5) (ppb) 3/31/2019	60	N/A	15	3.37 to 15.04	By-product of drinking water disinfection
Total Trihalomethanes (TTHMs) (ppb) 3/31/2019	80	N/A	7	ND to 8.91	By-product of drinking water disinfection

Key To The Tables

(MCLG) Maximum Contaminant Level Goal:
The level of contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

(MCL) Maximum Contaminant Level:
The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

(MRDLG) Maximum Residual Disinfection Level Goal:
The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

(MRDL) Maximum Residual Disinfectant Level: *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.*

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

Range of Detections:
The lowest to the highest result value recorded during the required monitoring timeframe for systems with multiple entry points.

Reverse Osmosis skids at MWTP

Abbreviations:

LSWTP – *Lime Softening Water Treatment Plant*
MWTP – *Membrane Water Treatment Plant*
WTP – *Water Treatment Plant*
MGD – *Million Gallons Per day*
NTU – *Nephelometric Turbidity Units*
TT - *Treatment Technique*
AL – *Action Level*
N/A – *Not Applicable*
ND - *Not Detected*
ppm - *parts per million*
ppb - *parts per billion*

pCi/L - *picocuries per liter (a measure of radioactivity)*

Fourth Unregulated Contaminant Rule (UCMR4)

The City of Fargo was selected by the EPA to sample and test for up to 30 unregulated contaminants during 2018 and 2019. Samples were taken four times from the Red River and Sheyenne River intake stations, the Water Treatment Plant finished water, and the Maximum Residence (MR) Time Sampling points within the distribution system.

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.

The following regulated and unregulated contaminants were the only contaminants detected during this sampling. Should you have any questions regarding (UCMR4), please contact our facility or visit the EPA website: ***https://www.epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule***

Contaminants Detected	Red River (ppb)	Sheyenne River (ppb)	Fargo WTP (ppb)
	Average Value Range	Average Value Range	Average Value Range
Bromide	46.0 (40.3 to 55.8)	238.7 (127 to 343)	N/A
Total Organic Carbon (TOC)	9230 (7440 to 12200)	8700 (8100 to 9060)	N/A
Manganese	N/A	N/A	1.62 (1.23 to 2.01)

Contaminants Detected	Average values at (MR) Time sampling point within distribution system. (ppb)			
	Stage 2, Site #1	Stage 2, Site #2	Stage 2, Site #3	Stage 2, Site #4
HAA5	10.53 (Range: 2.88 to 17.34)	12.03 (Range: 2.59 to 18.51)	13.11 (Range:3.12 to 20.56)	15.62 (Range:4.54 to 23.83)
HAA6Br	1.13 (Range: 0.39 to 2.29)	1.27 (Range: 0.43 to 2.5)	1.38 (Range: 0.65 to 2.71)	1.27 (Range: 0.75 to 1.94)
HAA9	11.49 (Range: 3.27 to 18.63)	1.13 (Range: 3.02 to 20.04)	1.13 (Range: 3.79 to 22.05)	1.13 (Range: 5.29 to 25.77)

Contaminants Detected	Average values at (MR) Time sampling point within distribution system. (ppb)			
	Stage 2, Site 5	Stage 2, Site 6	Stage 2, Site 7	Stage 2, Site 8
HAA5	15.81 (Range: 4.55 to 26.32)	10.34 (Range: 2.66 to 17.38)	14.50 (Range: 2.75 to 21.51)	14.50 (Range: 4.77 to 22.02)
HAA6Br	1.32 (Range: 0.75 to 1.72)	1.02 (Range: 0.58 to 1.38)	1.48 (Range: 0.68 to 2.75)	1.35 (Range: 0.86 to 1.91)
HAA9	17.13 (Range: 5.3 to 27.87)	11.36 (Range: 3.43 to 18.76)	15.86 (Range: 3.43 to 23.23)	15.86 (Range: 5.63 to 23.93)

HAA5 includes dibromoacetic acid, dichloroacetic acid, monobromoactic acid, monochloroacetic acid, and trichloroacetic acid.

HAA6br includes bromochloroacetic acid, bromodichloroacetic acid, dibromoacetic acid, chlorodibromoacetic acid, monobromoacetic acid, and tribromoacetic acid.

HAA9 includes bromochloroacetic acid, chlorodibromoacetic acid, dibromoacetic acid, dichloroacetic acid, monobromoacetic acid, monochloroacetic acid, tribromoacetic acid, and trichloroacetic acid.

Cryptosporidium

Cryptosporidium is a microbial parasite which is found in surface waters throughout the United States. Symptoms of Cryptosporidium infection may include nausea, diarrhea, and abdominal cramps. Most healthy individuals that become infected are able to overcome these symptoms within a few weeks. However, immune-compromised individuals have more difficulty and are at greater risk of developing severe or potentially life threatening illness.

Cryptosporidium must be ingested to cause disease and it may be ingested through means other than drinking water. Immuno-compromised individuals are encouraged to consult their doctor regarding the appropriate precautions to take to avoid infection.

Although filtration removes Cryptosporidium, the most common filtration methods cannot guarantee 100% removal. In April 2015, the City of Fargo began monthly testing to monitor source water for Cryptosporidium. This testing lasted two years and was performed in compliance with the EPA Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). The results of the 24 samples analyzed indicated an average of 0.095 oocysts per liter in the City of Fargo source water (not the finished drinking water). For Fargo, source water is defined as the Red River and/or Sheyenne River entering the Water Treatment Plants. This concentration of Cryptosporidium falls into the second lowest of 4 levels of treatment requirements, but requires additional treatment credits for our (LSWTP). The City of Fargo will be installing an Ultraviolet (UV) disinfection system in the (LSWTP) to achieve the additional disinfection credits. The project will be completed in early-2021. The new (MWTP), recently completed in 2019, meets all Cryptosporidium treatment requirements.

Our Water Supply and Drought Management

The primary water source for the City of Fargo Water Plant is the Red River. A water intake and pump station is located just west of our facility in proximity to the Midtown Dam. The City has alternate sources of water which include the Sheyenne River and water storage at Lake Ashtabula. The Sheyenne intake and pumping station is used approximately 30 % of the time and is located between the communities of West Fargo and Horace. Each pumping facility can be used independently or combined to provide source water flow into each of our treatment facilities. We focus on utilizing these sources wisely to minimize operating and treatment costs while optimizing water quality for our customers.

The City of Fargo owns 52% of the stored water rights to Lake Ashtabula. This allocation was a result of the City of Fargo helping to fund the construction of the Baldhill Dam north of Valley City. During a drought, with Corps of Engineers approval, water from Lake Ashtabula can be released into the Sheyenne River to help meet Fargo's water needs. This lake (used in 1976, '84, and '88), along with water restrictions, and conservation, can help provide Fargo's emergency water needs for approximately two years.

The City of Fargo has a drought management plan that monitors water flow, river levels and the precipitation index. The City has adopted an ordinance that mandates citizen participation during drought to reduce the impact to all water users. For more information about the drought management plan visit:

www.fargond.gov/city-government/departments/water-treatment/drought-plan

Source Water Protection

The City of Fargo public water system, in cooperation with the North Dakota Department of Environmental Quality, 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 Environmental Quality has determined our source water is moderately susceptible to potential contaminants. You can learn more about the North Dakota Source Water Protection Program online at:

www.deq.nd.gov/WQ/1_Groundwater

Water Treatment Plant Expansion

In the spring of 2019, the City of Fargo Water Treatment Plant completed an exciting expansion project at our facility. The culmination of this expansion project took nearly a decade to complete from the initial planning, research, small-scale pilot testing, design, and over 3 years of construction. With the completion of this project, we essentially have two water treatment plants under one roof with a total treatment capacity of 45 Million Gallons per Day (MGD). The new addition to our facility, or MWTP, employs advanced membrane treatment technologies to remove dissolved substances in the water such as sulfate and bromide that conventional treatment does not address. The treatment capacity of the MWTP is 15 (MGD). Our existing plant, or LSWTP, has been online since 1997 and continues to employ state-of-the-art conventional treatment processes to provide a capacity of 30 (MGD) of drinking water to our consumers.

Our MWTP and LSWTP are now working in harmony side-by-side. The processes and technologies afforded by both plants provide the flexibility to strategically manage our treatment approach to address degrading source water quality while meeting water demands of an increasing population and responsibly managing costs. For further information about this project, please visit our website:

www.fargond.gov/city-government/departments/water-treatment/expansion-project

Advanced Ultra Filtration Technology at MWTP