Making DRINKING WATER Safe

Minneapolis Water System Annual Drinking Water Report

City of Minneapolis

Treatment

Americans enjoy some of the highest quality drinking water in the world. This is because the water we drink is treated, its quality improved by a variety of different processes. The following paragraph describes the treatment processes used to enhance the quality of our water.

Minneapolis is one of the few cities in the state that **softens** water at a centralized softening plant. This minimizes the need to purchase and maintain a home softening system. To eliminate disease-causing microorganisms, the water is **disinfected** using chloramination technology. This alternative to chlorine disinfection results in a constant and persistent level of disinfectant throughout the distribution system while minimizing the formation of potentially harmful trihalomethanes. Addition of **fluoride** is mandated by state law. Fluoride has been proven to reduce tooth decay, especially in children. At certain times of the year, the water is treated for **taste- and odor- control.** Activated carbon, which absorbs and retains taste- and odor- causing substances, and potassium permanganate are used to produce a pleasing product. **Color and turbidity control** is achieved through the addition of a coagulant followed by filtration. Huge beds of filtration media produce a crystal-clear final product. To **prevent corrosion** of household plumbing, which can result in elevated lead and copper levels in your water, the MWW adds corrosion inhibitors to the water. This coats the inside of your plumbing with a protective lining and prevents the leaching of lead and copper into the water.

Water Usage and Conservation

Of the 70 million gallons of water the MWW produces per day, 22% is sold to suburban cities. Minneapolis residents typically use about 65 gallons per person per day. Total daily consumption, including industrial uses, is about 145 gallons per person. These values are far less than national averages and are lower than the usage rates of most suburbs. We encourage conservation, especially in the summer. This enables us to successfully manage the supply when demand is high.

Drinking Water Quality in Minneapolis

Minneapolis Water Works Customers:

Welcome to our first annual water quality report! The purpose of this report is to summarize the results of monitoring performed on our water during 1998 and to inform our customers about drinking water and your water utility. Information from the United States Environmental Protection Agency (EPA) is provided for your review. Read and evaluate this information not only as a customer but also as a stakeholder in a billion-dollar water system that delivers an uninterrupted flow of water to you every day. We believe you will come away with a heightened awareness of the process required to treat and produce aesthetically pleasing drinking water.

Minneapolis Water Works Facts

History. The Minneapolis Water Works (MWW) traces its beginnings to 1867, when a community-wide source of water was established for fire fighting. The system was expanded to include drinking water in 1872. The original system began with a single pumping station drawing water from the Mississippi River at Fifth Avenue South and has evolved into the largest water utility in the upper Midwest.

System Infrastructure. The total value of the physical assets of the MWW is well over one billion dollars. The utility maintains over 1000 miles of water main, 14,000 valves, and 8000 fire hydrants within the City of Minneapolis. Storage capacity totals 162 million gallons. The service area also includes Golden Valley, Crystal, New Hope, Columbia Heights, Hilltop, parts of Bloomington and Edina, and the Minneapolis/St. Paul airport. The 250 employees of the MWW supply water to over 500,000 people every day.

Water Source. The Mississippi River is the sole source of water for the City of Minneapolis. The city draws approximately 23 billion gallons of water from the river every year.

Information on Water from the EPA

Drinking water sources (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over and through the ground, it dissolves natural material and can pick up substances resulting from the presence of people and animals. The water is regularly tested for possible contaminants:

- **Viruses and bacteria, which may come from sewage, agriculture, and wildlife.**
- **Salts and metals, which can occur naturally or result from runoff, wastewater, or farming.**
- **Pesticides and herbicides, which may come from agriculture, runoff, and residential uses.**
- **Synthetic and volatile organic chemicals, which are industrial by-products and can come from gas stations, runoff, and septic systems.**
- **Radioactive constituents, which can be naturally occurring and result from mining.**

**In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of substances in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water that must provide the same protection for public health. *Some people may be more vulnerable to contaminants found 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. Environmental Protection Agency/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium are available from the Safe Drinking Water Hot-Line (800-426-4791).*
Cryptosporidium is a microscopic organism that, when ingested, can result in diarrhea, fever, and other gastrointestinal distress. The organism originates from animal wastes in the watershed. Elimination is accomplished through filtration, sedimentation, and disinfection, all treatment process used by the MWW.**

Monitoring Report Summary

For the calendar year of 1998, **no contaminants were detected at levels that exceeded federal standards.** The table lists the substances that were detected in trace amounts that were below legal limits. According to the Environmental Protection Agency, drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. Their presence 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 Safe Drinking Water Hotline at (800) 426-4791. Currently, your drinking water is tested and monitored for over 100 regulated *and* unregulated substances. Regulated contaminants have had Maximum Contaminant Levels (MCLs) established by the Safe Drinking Water Act legislation. Unregulated contaminants do not have established MCLs, but are assessed using state standards known as Health Risk Limits, or have recommended maximums set by the Safe Drinking Water Act. ***If state or federal standards for regulated or unregulated substances are ever exceeded in your water supply, the Minneapolis Water Works will immediately inform its customers so that corrective action can be taken.***

Lead is a contaminant that can be leached from the plumbing in private homes, especially in older dwellings. The lead levels in the Minneapolis water system are in compliance with federal and state standards. It is possible, however, that lead levels in your home could be higher than those at other residences in the city due to materials used in your home's plumbing. If you are concerned about lead (young children typically are more vulnerable to lead in drinking water than the general population) you may wish to have your water analyzed for lead. Running your tap until the water runs at its coldest prior to use for drinking or cooking has been proven effective in significantly reducing lead levels in your water. To minimize any possible sources of lead contamination in your home, the MWW adds a corrosion inhibitor to the water. This lines the inside of your plumbing and makes sources of lead unavailable to corrosion and leaching. For more information on lead in drinking water contact the Safe Drinking Water Hotline.

Ongoing Monitoring. The MWW, the MN Department of Health, and independent laboratories regularly test and monitor the Minneapolis water supply for **safety** and **quality**. Nearly 200,000 laboratory tests are run every year on Minneapolis water.

Summary

The employees at the MWW strive to provide you, a customer and stakeholder, a high quality water as well as high quality service. In pursuit of these goals, we consistently meet and exceed federal and state standards for drinking water, and with your help, will continue to do so. Our customers are encouraged to provide input into the MWW. If you have questions or need more information, contact the MWW at (612) 661-4999.

Substances Detected in the Minneapolis Water Supply

Regulated Substances Controlled Prior to Distribution

Substance (units)	Highest Level Allowed (MCL)	Highest Level Detected in Minneapolis Water	Range Detected	Ideal Goal (MCLG if regulated)	Meets Regulatory Guidelines	Typical Sources of Substance
Nitrate as Nitrogen (ppm)	10.0	0.73	0.57-0.73	10.0	✓	Fertilizer, sewage, wildlife
Trihalomethanes (ppb)	100.0	37.8*	13.5-37.8	--	✓	Disinfection by-product
Fluoride (ppm)	4.0	1.1	--	4.0	✓	State-required additive
Turbidity: A measure of water cloudiness. Monitored because it is a good indicator of the effectiveness of our filtration system.						
Turbidity (NTU)	TT	0.44 - no samples exceeded limits	--	--	✓	Soil Runoff
Unregulated Substances Monitored in Minneapolis Water						
Sodium (ppm)	--	9.8	--	200	✓	Natural Deposits
Chloroform (ppb)	--	7.5	--	60	✓	Disinfection by-product
Bromodichloromethane (ppb)	--	1.9	--	6.0	✓	Disinfection by-product

Regulated Substances Controlled in the Distribution System

Substance (units)	Action Level (AL) 90% of samples must be less than this level	# of sites over the Action Level	90% of all samples were below this level	Meets Regulatory Guidelines	Typical Sources of Substance
Lead (ppb)	15	7 out of 100 tested	9.9	✓	Home plumbing
Copper (ppm)	1.3	0 out of 100 tested	0.096	✓	Home plumbing

The following data was part of the Information Collection Rule (ICR), an EPA mandated, 18 month sampling and testing program. The purpose was to generate water quality data for of future water regulations.

Substance (units)	Range Detected	Average Level Detected	Typical Sources of Substance
Chloral Hydrate (ppb)	0.5-1.9	1.4	Disinfection by-product
Haloacetic Acids, HAAS (ppb)	9-45	24	Disinfection by-product
TOC, Total Organic Carbon (ppm)	3.1-6	4.4	Naturally present in environment
TOX, Total Organic Halogen (ppb)	73-215	130	Disinfection by-product
Cyanogen chloride (ppb)	1.91-5.33	3.61	Disinfection by-product

The following tests were performed on source water prior to treatment processes. Treatment typically removes these substances.

Mammalian Virus (MPNX/100L)	<1-37	9.5	Naturally present in environment
Cryptosporidium (oocysts/100L)	<5-119	115	Naturally present in environment
Giardia (cysts/100L)	7-435	149	Naturally present in environment

Key: **MCLG:** Maximum Contaminant Level Goal (the level of 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 the contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology). **AL:** Action Level (the concentration of a contaminant which, if exceeded, triggers treatment or other requirement which a water system must follow). **PPB:** parts per billion (equivalent to 1 tsp/1,300,000 gallons). **PPM:** parts per million (equivalent to 1 tsp/1300 gallons). **ND:** Not Detected. TT: Treatment technology. **NTU:** Nephelometric Turbidity Unit. *Level used to determine compliance was 22.9 ppb.