

Minneapolis Water Works Water Quality Report

June, 2000



The Minneapolis Water Works is again pleased to report that the city's water meets all EPA and Minnesota Department of Health guidelines for safe water for the 1999 reporting year. Laboratory testing results for Minneapolis water, along with other information about the Minneapolis water system, are summarized in this report, a requirement of the 1996 Reauthorization of Safe Drinking Water Act. All public water systems in the United States are required to report to their customers in this manner so that residents are informed about the quality of water being delivered. If you have questions regarding water quality, the water system, or would like information on opportunities to impact decisions regarding drinking water quality, please contact any of the following organizations:

Minneapolis Water Works: (612) 661-4999
Minnesota Department of Health: (651) 215-5800
EPA Safe Drinking Water Hotline: (800) 426-4791

1999 Minneapolis Water Monitoring Report Summary

Laboratory Testing

The Minneapolis Water Works is again pleased to report that the Minneapolis water system had no violations of drinking water standards for the previous reporting year. During the course of a year, your water is tested for over a hundred regulated and unregulated substances. Those detected are listed in the table below. None of the substances were detected at a level that exceeded EPA or Minnesota Department of Health standards for safe drinking water.

In addition to required regulatory testing, Minneapolis Water Works employees perform hundreds of chemical tests each day to monitor aesthetic water quality parameters—things like hardness, pH, taste and odor. This is part of our effort to deliver the best possible water to our customers.

Tap Water Regulations

The U.S. Environmental Protection Agency (EPA) prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Levels of regulated contaminants are enforced through Maximum Contaminant Levels (MCLs) set by Congress. Unregulated contaminants do not have established MCLs,

but levels of some unregulated substances may be assessed using state standards known as Health Risk Limits to determine if they are risk to human health.

Bottled Water Regulations

Food and Drug Administration regulations establish limits for contaminants in bottled water that must also provide protection for public health. Under federal law, bottled water is a packaged foodstuff meaning water bottlers must meet different testing, treatment, and public notification regulations than community water supplies.

According to the EPA, 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 at (800) 426-4791.

Substances Detected in the Minneapolis Water Supply

Regulated Substances Detected Prior to Distribution						
Substance	Units of Measurement	Highest Allowed Level (MCL)	Detected Amount Used to Determine Compliance*	Range Detected	Recommended Maximum (MCLG)	Typical Source of Substance
Nitrate as Nitrogen	ppm	10	0.18	—	10	Fertilizer, natural deposits, septic tanks, sewage
Fluoride	ppm	4.0	1.09	0.91-1.3	4.0	Additive to prevent tooth decay
Thallium	ppb	2.0	0.5	—	0.5	Ore processing sites; discharge from glass, electronics, and drug factories
Total Trihalomethanes	ppb	100	21.3	8.8-29	0	Disinfection byproducts
Alpha Emitters	pCi/L	15	1.1	—	0	Erosion of natural deposits

Turbidity: Water Clarity Measured to Assess Filtration Effectiveness						
Turbidity	NTU	Treatment Technique	100% of samples were within limits	Highest: 0.42	—	Soil runoff

Lead and Copper Results in the Water Distribution System—all samples tested in 1998						
Substance	Units of Measurement	AL: 90% of samples must be below this level	# of samples tested over the AL	90% of samples were below this level	Typical Source of Substance	
Lead	ppb	15	7 out of 100	9.9	Plumbing corrosion, natural deposits	
Copper	ppm	1.3	0 out of 100	0.096	Plumbing corrosion, natural deposits, wood preservatives	

Unregulated Substances				
Substance	Units of Measurement	Detected Amount Used to Determine Level in the System	Range Detected	Typical Source
Sodium	ppm	9.05	—	Natural deposits
Chloroform	ppb	18.7	7.6-26	Disinfection by-product
Bromodichloromethane	ppb	2.7	1.2-3.9	Disinfection by-product

Key to terms. *Detected Amount Used to Determine Compliance is sometimes the highest amount detected and sometimes the average of all detected amounts from samples tested throughout the year. **MCL:** Maximum Contaminant Level (The highest amount allowed in drinking water. Set as close to MCLGs as feasible using the best available treatment technology). **MCLG:** Maximum Contaminant Level Goal. (The level below which there is no known or expected risk to health. MCLGs allow for a margin of safety). **AL:** Action Level (the concentration which, if exceeded, triggers treatment or other requirement the system must follow). **ppm:** parts per million. **ppb:** parts per billion. **NTU:** Nephelometric Turbidity Units. **pCi/L:** picocuries per liter, a measure of radioactivity.

Lead. The Minneapolis water system is in compliance for lead. It is possible, however, that the lead levels in your home may be higher than at other homes in the city due to materials used in the construction of your home's plumbing system. If you are concerned about lead levels in your water (young children are more vulnerable to lead than adults) you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes prior to using the water. Additional information is available from the Safe Drinking Water Hotline at 800-426-4791.

Water System Information

History

The Beginnings

The City of Minneapolis has been providing water to residents from the Mississippi River for 133 years. In 1867 a small pump and a system of mains and hydrants were installed for fire protection in the lumber milling district. Within five years, water was being supplied to residences south and west of the river by a pumping station at S. 1st St. and 5th Ave. Prior to this time, water was obtained from “water wagons” filled from the river and private wells.

Expansion of the distribution system to other parts of the city proceeded slowly due to the difficulties encountered in water main construction. Pipes were laid too shallow and burst in the harsh winter climate. Several attempts to lay water main across the river failed miserably. The first Water Superintendent, appropriately named James Waters, oversaw this effort until he resigned in 1878 over battles with the City Council over water billing.

In 1881 the city formed the Board of Water Commission and hired S.L. Blodgett of Milwaukee to design the water system. He chose the Columbia Heights area as the focal point of the water system because it was the highest point of land dominating the city and water would flow to users via gravity.

Disease

As early as 1876, council members worried about raw sewage in the river affecting the drinking water. Typhoid fever

epidemics at the turn of the century motivated the city to explore alternative supplies: artesian wells; Cedar and Medicine Lakes and Lakes Minnetonka and Mille Lacs. It was ultimately decided to move the water intake upstream from Minneapolis to lessen the impact of sewage on the drinking water. In 1906 the property west of Reservoir Blvd. at 45th Ave. in Columbia Heights was donated to the Minneapolis Water Works for a treatment plant. Chlorination began in 1910 and this immediately brought disease under control. After completion of the treatment plant in 1913, Minneapolis residents were provided with filtered and purified water for the first time. A rail line was constructed along Reservoir Blvd. so that workers and treatment chemicals could be transported to the plant by streetcar. In the 1950's the streetcar system was abandoned and chemicals were trucked to the plant.

Today

Water still flows today from the Mississippi River at Fridley to the treatment plant at Columbia Heights, where treatment processes are much more thorough and sophisticated than they were 100 years ago. The water system now includes over 1000 miles of water main, 14,000 valves, 8000 fire hydrants, and 162 million gallons of storage capacity. Water is delivered to over 500,000 people in eight cities. Approximately 23 billion gallons of water is pumped from the Mississippi River by the Minneapolis Water Works each year.

Water Treatment

The best drinking water in the world is delivered to residents of large cities in the United States. The reason for this high quality is treatment processes that purify our raw water sources. Our water source, the Mississippi River, is a surface supply that has variable characteristics that change with temperature, precipitation, snowmelt, and season of the year. The Minneapolis Water Works' treatment processes are designed to take source water of variable quality and convert it to drinking water with consistent characteristics. The Minneapolis Water Works uses six treatment processes to prepare the water for consumption and other uses:

Softening to reduce the level of the hardness minerals calcium and magnesium and make the water easy to use for washing.

Taste and Odor-causing substances are oxidized by potassium permanganate and absorbed by activated carbon.

Corrosion Inhibitors are added to the water which prevent the absorption of lead and copper into the water from home plumbing systems.

Disinfection with chloramine to kill disease-causing organisms throughout the distribution system.

Fluoride is added at state-mandated levels to provide dental protection.

Filtration to remove solids, microorganisms, and other substances that can affect taste and odor.

Treated Water is Used For:

Fire Protection



Industry

Consumption

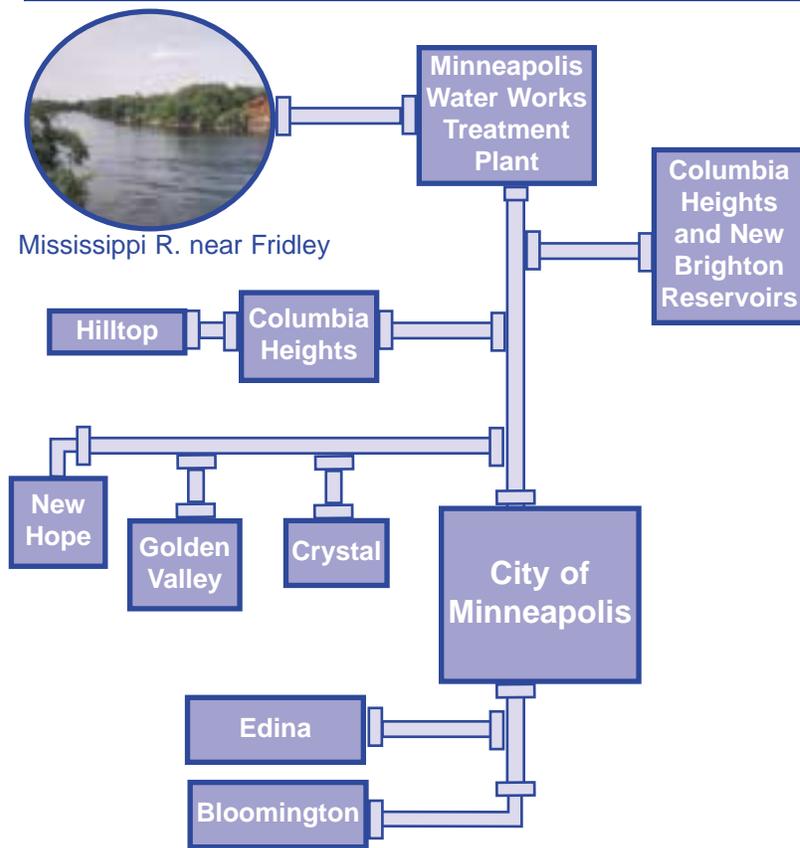


Household Uses



Recreation

The Minneapolis Water Distribution System



The Minneapolis Water Works supplies water to over 500,000 people in eight communities, the University of Minnesota, and the Minneapolis/St. Paul airport. Water is delivered through 1000 miles of water mains and several pumping stations.

Water Distribution is coordinated through a sophisticated computer network known as a SCADA system. SCADA is an acronym for Supervisory Control And Data Acquisition. The SCADA network coordinates pumping, storage and flow to the Minneapolis system. The present system will be expanded over the next three years to include monitoring and control of the water treatment processes.

Substances that are Monitored in Drinking Water

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 people and animals. Substances that are monitored are listed at right.

Information for At-Risk Individuals

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).

Microorganisms like coliforms and other bacteria, which may come from sewage, septic systems, agriculture, and wildlife.

Pesticides and herbicides, which may come from agriculture, runoff, and residential uses.

Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

Organic chemicals, including synthetic and volatile organics, which are industrial and petroleum process by-products that can come from gas stations, runoff, and septic systems.

Inorganics such as salts and metals, which occur naturally or result from runoff, wastewater discharges, oil and gas production, mining, or farming.

Information Collection Rule

In 1997-98, the Minneapolis Water Works participated in an 18 month, EPA-mandated sampling and testing program known as the Information Collection Rule. The purpose of this program was to generate data for future regulations. The data obtained is listed below.

Parameter	Average Result	Range Detected
Disinfection byproducts		
Chloral Hydrate (ppb)	1.4	0.5-1.9
Cyanogen Chloride (ppb)	3.61	1.91-5.33
Haloacetic Acids (ppb)	24	9-45
Naturally occurring substances		
Total Organic Carbon (ppm)	4.4	3.1-6
Total Organic Halogen (ppb)	130	73-215

ppb=parts per billion ppm=parts per million
ND=Not Detected