Water Meter Upgrade Project

The City of Minneapolis uses an automated system for reading the water meters of its many homes and businesses, and it has had to change with the times.

Many of the water meters in service were installed from 1992 to 2002. These automatically read (AMR) meters send readings by using the customer's home telephone connection. By cutting back on manual meter reading, the city has saved both staff and customer's time.

These days, however, more and more customers have cellular phones as their primary phone lines. That means there are no land lines in homes for the meters to use. Customers in this situation must have their meters read manually or have their meters upgraded to a radio-based read system called RF ERT.

The City of Minneapolis has been adding radio transmitters to existing meters in roughly 7,000 homes each year. The new system uses a short-range radio signal to transmit meter readings to receivers in vehicles that are periodically driven through neighborhoods.

About half of our city's meters are read with the AMR system and half are read with the RF system.

Membrane Filtration Plant at Columbia Heights

Minneapolis Water Works now has a membrane filtration plant in Columbia Heights that provides high quality drinking water to more than half a million consumers in Minneapolis and surrounding communities. This facility uses "ultrafiltration" technology. In this process, membranes filter out particles smaller than can be detected by a standard microscope. This is beneficial because it removes pathogens such as cryptosporidium, which are resistant to chlorination.

Who drinks City of Minneapolis Water?

- **-Crystal**
- **-Golden Valley**
- **-New Hope**
- **-Bloomington (some neighborhoods)**
- **-Columbia Heights**
- **-Hilltop**
- **-Edina (Morningside)**
- **-The Mpls/St Paul Airport**

The Columbia Heights ultrafiltration plant processes up to 70 million gallons of water per day. A second ultrafiltration plant is slated to go live in the coming years, which would make Minneapolis one of the world's largest municipalities to get all of its tap water through this process.

Water Main Lining

Part of maintaining water quality involves taking care of the water mains that bring the water to homes and businesses. That's why the City is cleaning and lining these older pipes throughout Minneapolis.

Water main cleaning and lining involves scraping the mineral deposits out of the interior of the pipes and installing a liner that prevents future rust. This adds an estimated 50 years to the life of the pipe, increases flow and improves the appearance and quality of the water. The cost of water main cleaning and lining is approximately one-fourth of the cost of digging up the pipes and replacing them.

This project is an investment in our infrastructure that provides long-term benefits for our water quality and protects us from expensive repairs in the future.

What affects the taste and smell of drinking water?

Our water comes from the Mississippi River, a major waterway that's fed by lakes, streams and ground water upstream. Because the sources of water vary, the taste and smell of the water can change quite quickly.

Algae, which grows naturally in lakes and streams, can affect the taste and smell of our water. Other organic material, such as leaves and aquatic plants can also contribute to this. Because our noses are very sensitive, even the tiniest trace (perhaps as low as five parts per trillion) can be detected.

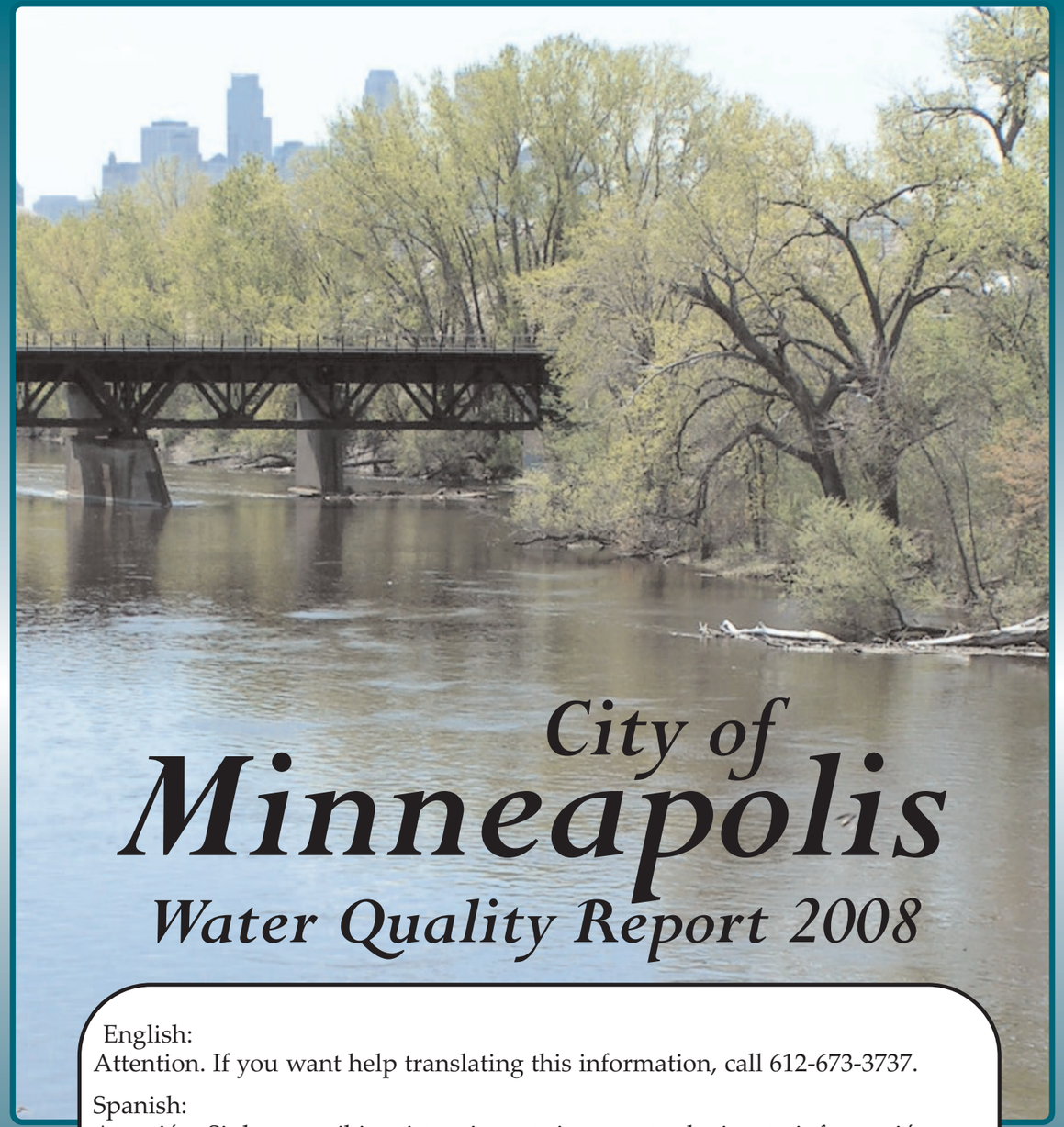
We have two primary treatments for removing those odor-causing materials. One is powdered activated carbon, which absorbs the odors like a sponge. The other is potassium permanganate, a substance that oxidizes chemicals and destroys odor-causing compounds.

It is important to note that these naturally occurring smells or tastes are not associated with any known health risk to humans. Also, all disinfection chemicals and compounds formed from their use, which may cause taste and odor, exist at levels well below federally mandated exposure limits.

Do we have PFCs in our water?

In recent years, some local communities have detected perfluorochemicals (PFCs) in their drinking water sources. Some consumers have expressed concern about potential exposure to PFCs. We are happy to report that these chemicals are not present in The City of Minneapolis' drinking water.

Remember, storm drains lead straight to the river without treatment. Please, do your part to keep our waterways clean.



City of Minneapolis

Water Quality Report 2008

English:
Attention. If you want help translating this information, call 612-673-3737.

Spanish:
Atención. Si desea recibir asistencia gratuita para traducir esta información, llama al 612-673-2700.

Somali:
Ogow. Haddii aad dooneyso in lagaa kaalmeeyo tarjamadda macluumaadkani oo lacag la' aan wac 612-673-3500.

Hmong:
Ceeb toom. Yog koj xav tau kev pab txhais cov xov no rau koj dawb, hu 612-673-2800.

Sign Language:
612-673-3220 TTY 612-673-2626

311 Minneapolis

From the River to Your Tap

Our water comes from the Mississippi River. Before it gets to your home, Minneapolis Water Works filters and tests the water thoroughly in certified laboratories that can detect trace amounts of contaminants.

No matter where you live, the tap water you get contains trace amounts of contaminants. These contaminants do not necessarily pose a health risk. Much depends on the substance and the amount dissolved.

The table on the right shows results for Minneapolis tap water tests performed last year. Some contaminants were detected more than a year ago; they are included in the table along with the date that they were detected.

Nationwide, sources of drinking water (both tap and bottled) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, naturally occurring minerals and, in some cases, radioactive material, can dissolve into it. The water can also pick up substances resulting from the presence of animals or humans. That's why the U.S. Environmental Protection Agency (EPA) regulates substances that can be harmful to human health and have at least a reasonable possibility of being found in water sources or finished drinking water. Our water is monitored for these regulated contaminants. Tests are performed weekly, quarterly or annually. However, levels of many substances change little over time, or the chance of finding a detectable amount is low. In these instances contaminants are monitored less than annually.

Tests show that substances found in our drinking water were within federal safe drinking water standards. Those tests checked for levels of more than 100 different contaminants. Only those detected are listed in the table. Tested substances fall into one of five main categories:

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 occur naturally 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 byproducts of industrial processes and petroleum production. They can also come from gas stations, urban stormwater runoff and septic systems.

Radioactive contaminants, which can occur naturally or from oil and gas production and mining activities.

Understanding the Laboratory Results and Terms

Levels of substances detected are either the highest amount found in the water or averages of all samples analyzed, depending on the regulation. If multiple samples were tested in 2007, the lowest and highest detected values are listed under range of detections. The highest level of a substance allowed in drinking water is the **maximum contaminant level (MCL)**. The EPA sets this level. Some contaminants also have a **maximum contaminant level goal (MCLG)**. This is an even more conservative level of the substance than the MCL, where it has no known or expected health risk. MCLGs add a margin of safety.

Minneapolis tap water exceeds federal standards in many areas. For substances that do have EPA maximum levels we assess our levels by comparing the detected amount to state standards known as health risk limits. If an unacceptable amount of any substance is ever found in our water, the Minneapolis Water Works will notify residents immediately and take corrective action to eliminate the problem. The MCL for lead and copper is known as the **action level (AL)**. Exceeding this level triggers corrective action to get 90 percent of all samples below this concentration.

There is convincing evidence that it is necessary to add a disinfectant to control microbial contaminants. The **maximum residual disinfectant level (MRDL)** is the highest level of a disinfectant allowed in drinking water. The **MRDL goal** is the level of disinfectant where it has no known or expected health risk. These goal amounts do not reflect the benefits of using disinfectants, only the level we should not exceed for safety.

"Turbidity" is a measure of water clarity. Certain **treatment techniques** are required to reduce turbidity (increase clarity) and eliminate microorganisms in the drinking water. Regulations require turbidity to be less than 0.3 **nephelometric turbidity units (NTU)** 95 percent of the time and less than 1 NTU all of the time.

The drinking water provided to customers may meet drinking water standards, but the Minnesota Department of Health has also made a determination as to how vulnerable the source of water may be to future contamination incidents. If you wish to obtain the entire source water assessment regarding your drinking water, please call (651) 201-4700 or go online at:
www.health.state.mn.us/divs/eh/water/swp/swa/index.htm

If you have questions about City of Minneapolis drinking water or would like information about opportunities for public participation in decisions that may affect the quality of the water, please call (612) 661-4999.

What You Need to Know about Drinking Water Regulations

In order to ensure that tap water is safe to drink, the EPA limits the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulates contaminants in bottled water, which must provide the same protection for public health. The EPA standards we meet for tap water are even higher than those required for bottled water. 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 mean that water poses a health risk. You can find more information about contaminants and potential health effects by calling the EPA's Safe Drinking Water Hotline (800) 426-4791.

If You Have Special Health Requirements

Some water customers may be more vulnerable to contaminants in drinking water than the general population. They include people with weakened immune systems (including cancer patients undergoing chemotherapy, organ transplant patients and people with HIV/AIDS or other immune system disorders), some elderly people and infants. Anyone who is at a higher risk of infection should seek advice from their health care providers about drinking water. The Safe Drinking Water Hotline at (800) 426-4791 has guidelines from the EPA/Center for Disease Control to lessen the risk of infection by cryptosporidium and other microbial contaminants.

Lead and Drinking Water

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 Minneapolis is responsible for providing high quality drinking water but cannot control the materials used in household plumbing. To minimize the potential for lead exposure due to your plumbing, let your tap run for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, testing is available. 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 www.epa.gov/safewater/lead.

2007 Laboratory Testing Results for Minneapolis Water

Detected Substance	Units of Measure	MCL	MCLG	Level Found	Range of Detections	Typical Source in Drinking Water
Fecal Coliform and E. coli	Positive Samples	present in >0 samples	0 present	1*	—	Human and animal fecal waste.
Fluoride	ppm	4	4	0.98	0.67-1.1	Additive that promotes strong teeth, fertilizer and aluminum factory discharge. Erosion of natural deposits
Haloacetic Acids (HAA5)	ppb	60	0	25.89	nd-54.7	Byproduct of drinking water disinfection
Nitrate (as nitrogen)	ppm	10	10	0.38	—	Erosion of natural deposits; fertilizer runoff; leaching from septic tanks, sewage
Total Trihalomethanes (TTHM)	ppb	80	0	33.39	9.9-58.1	By-product of drinking water disinfection
Total Coliform Bacteria	Positive Samples	present in >5% of monthly samples	0 present	1%*	—	Naturally present in the environment
Turbidity	NTU	Treatment Technique	—	100% of samples < 0.3	Highest reading 0.3	Soil runoff
Chlorine	ppm	(MRDL) 4	(MRDLG) 4	2.71 (Highest quarterly avg)	2.5-3 (Low-highest monthly avg)	Water additive used to control microbes
Copper (8/14/06)	ppm	90% of samples must be < 1.3 ppm (AL)	—	90% of samples < 0.12	0 out of 50 samples > 1.3	Corrosion of home plumbing systems, erosion of natural deposits
Lead (8/14/06)	ppb	90% of samples must be < 15 ppb (AL)	—	90% of samples < 5	3 out of 50 samples > 15	Corrosion of home plumbing systems, erosion of natural deposits
Sodium (10/19/06)	ppm	No USEPA limit set	—	15	—	Erosion of natural deposits
Sulfate (10/19/06)	ppm	No USEPA limit set	—	30.8	—	Erosion of natural deposits

AL: action level, the MCL for lead and copper **MCL:** maximum contaminant level **MCLG:** maximum goal (level for a substance where it has no expected health risks) **MRDL:** maximum residual disinfectant level **MRDLG:** maximum residual disinfectant level goal **pCi/L**: picoCuries per liter, a measure of radioactivity **ppb**: parts per billion, or micrograms per liter of water **ppm**: parts per million or milligrams per liter of water **ND:** not detected **NTU**: nephelometric turbidity units **TT:** treatment techniques

***Follow-up sampling showed no contamination present**