

The table that follows shows the contaminants that were detected in trace amounts. In 2007 we also collected and tested over 1,200 water samples for coliform bacteria, which we showed no bacteria present in the water.

### Regulated Substances

Parameter	Units	MCLG	MCL	Range (2007)	Avg./Results*	Typical Source of Contaminant
Alpha Emitters	pCi/l	0	15.4	nd – 14	12.6	Erosion of natural deposits.
Barium	ppm	2	2	0.024 – 0.07	0.07	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Combined Radium	pCi/l	0	5.4	Nd – 5.9	4.65	Erosion of natural deposits.
Fluoride	ppm	4	4	1.1 – 1.2	1.18	State of Minnesota requires all municipal water systems to add fluoride to the drinking water to promote strong teeth; Erosion of natural deposits; Discharge from fertilizer and aluminum factories.
Mercury (inorganic)	ppb	2	2	N/A	0.05	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland.
Nitrate (as Nitrogen)	ppm	10	10	ND-0.83	0.83	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
TTHM (Total trihalomethanes)	ppb	0	80	N/A	0.9	By-product of drinking water disinfection.
Tetrachloroethylene	ppb	0	5	ND-1.6	0.8	Leaching from PVC pipes; discharge from factories and dry cleaners.
Trichloroethylene	ppb	0	5	Nd – 0.1	0.03	Discharge from metal degreasing sites and other factories.
Radon	pCi/l	N/A	300	N/A	156.5	Erosion of natural deposits.

### Unregulated Substances

Parameter	Units	SMCL	Avg./Results*	Effects - Source
Sodium	ppm	4.2	N/A	Salty taste – Erosion of natural deposits.
Sulfate	ppm	41.5	N/A	Laxative effect – Erosion of natural deposits.
Iron	ppm	0.25	0.3	Rusty color, staining, metallic taste. Not a health problem.
Hardness, Total	ppm	283	N/A	Mineral deposits
Hardness, Total	gpg	16.5	N/A	Mineral deposits
Aluminum	ppm	0.06	0.05 to 0.2	Colored water
Chloride	ppm	4.67	250	Salty taste
Manganese	ppm	0.04	0.04	Black-to-brown color, staining, metallic taste
pH	pH	7.5	6.5 to 8.5	Corrosion, metallic taste if below 6.5; deposits, slippery feel, soda taste if above 8.5
Total Dissolved Solids	ppm	330	500	Hardness, deposits, colored water, staining, salty taste
Turbidity	Ntu	<1	N/A	Refers to how clear the water is.

\*This is the value used to determine compliance with federal standards. It sometimes is the highest value detected and sometimes is an average of all the detected values. If it is an average, it may contain sampling results from the previous year.

### Regulated Substances Controlled in the Distribution System

Substance	Units	AL	90% Level	# of sites over AL	Meets Regulations	Typical Source
Lead (7/21/07)	ppb	15	3.0	0 out of 30	Yes	Corrosion of household plumbing systems.
Copper (7/21/07)	ppm	1.3	0.73	0 out of 30	Yes	Corrosion of household plumbing systems.

- ▶ **Maximum Contaminant Level (MCL)** - Highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- ▶ **Maximum Contaminant Level Goal (MCLG)** - 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.
- ▶ **N/A** - Not Applicable.
- ▶ **ND** - Not Detected.
- ▶ **ppm** - Parts per million.
- ▶ **ppb** - Parts per billion.
- ▶ **gpg** - Grains per gallon.
- ▶ **pCi/L** - Pico curies per liter (a measure of radioactivity).
- ▶ **Range** - This is the lowest to the highest a contaminant was detected in 2007.
- ▶ **AL** - Action Level is the concentration of a contaminant which triggers treatment or another requirement which a water system must follow.
- ▶ **90% Level** - 90% of samples must be below the AL.
- ▶ **SMCL** - Secondary Maximum Contaminant Level. Basically a guideline - EPA does not require compliance with secondary MCLs.
- ▶ **Ntu** - Nephelometric units.

### Health Information from the EPA

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 and the Centers for Disease Control 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 (www.epa.gov), or the Minnesota Department of Health 651-215-5800 (www.health.state.mn.us).**

### Radon

Radon is a radioactive gas which is naturally occurring in some groundwater. It poses a lung cancer risk when gas is released from water into the air (as occurs during showering, bathing, or washing dishes or clothes) and a stomach cancer risk when it is ingested. Because radon in indoor air poses a much greater health risk than radon in drinking water, an Alternative Maximum Contaminant Level (ACML) of 4,000 picoCuries per liter (pCi/l) may apply in states that have adopted an Indoor Air Program, which compels citizens, homeowners, schools, and communities to reduce the radon threat from indoor air. For states without such a program, the Maximum Contaminant Level (MCL) of 300 pCi/l may apply. Minnesota plans to adopt an Indoor Air Program once the Radon Rule is finalized.

### Public Meetings

The Rochester Public Utilities Board meets at 4 p.m. the last Tuesday of each month at 4000 East River Road NE, Rochester. For more information, please call 280-1500 or visit [www.rpu.org](http://www.rpu.org).



Rochester Public Utilities

# Water Quality Report 2007

[www.rpu.org](http://www.rpu.org)

Spanish: Informacion importante. Si no la entiende, haga que alguien se la traduzca ahora.

Hmong: Nov yog ntaub ntawv tseem ceeb. Yog koy tsi to taub, nrhiav neeg pab txhais rau koh kom sai sai.

In our 10th annual **Drinking Water Quality Report**, we are pleased to announce that our record for meeting all state and federal drinking water standards remains excellent. The City of Rochester and Rochester Public Utilities (RPU) are dedicated to one clear goal – Quality First. With a focus on customer service and efficiency in operations, we continue to strive for excellence through new water quality programs that will ensure a safe and reliable drinking water supply for years to come. RPU is issuing the results of monitoring done on its drinking water for the period of January 1 through December 31, 2007. The purpose of this report is to advance consumers' understanding of drinking water and heighten awareness of the need to protect precious water resources.

## Source of Water

Water is pumped from 30 deep groundwater wells located throughout the city. Most wells are 24 inches in diameter and extend 400-1,000 feet in depth. Water in the Rochester municipal system is drawn from water-bearing rock layers called aquifers. An aquifer is any type of geologic material, such as sand or sandstone, which can supply water to wells or springs. Most of Rochester's water is drawn from the Jordan aquifer, a deep sedimentary unit that underlies much of southeastern Minnesota. Water is also drawn from the Prairie Du Chein-Jordan, Prairie Du Chein-Galesville, Jordan-Galesville, and Prairie Du Chein-Mt. Simon aquifers.

The 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 800-818-9318 (and press 5) during normal business hours. Also, you can view it on line at [www.health.state.mn.us/divs/eh/water/swp/swa](http://www.health.state.mn.us/divs/eh/water/swp/swa).

Call 507-280-1589 if you have any questions about the City of Rochester drinking water or would like information about opportunities for public participation in decisions that affect the quality of the water.

## Water Processing

Rochester's water quality is especially high due to the depth of the wells and the quality of the source; therefore there is little need for processing. At each of our wells, the following chemicals are added to the groundwater before it is pumped into the distribution system:

- ◆ **Fluoride (helps prevent tooth decay)** *Minnesota Statutes require all municipal water supplies to maintain a fluoride concentration of 0.9 - 1.5 ppm, RPU's average level is 1.18 ppm. Levels of fluoride are tested weekly at 25 different residential and business sites around the city.*
- ◆ **Chlorine (disinfects drinking water)** *is added to the water at each well to minimize the chance for any bacteria, viruses, or fungi in the distribution system. Total Chlorine is measured weekly at the 25 different sites around the city and averaged 0.92 ppm.*
- ◆ **Polyphosphate (used for corrosion control)** *is added to our water to help prevent "rusty" water. A concentration of approximately 0.5 ppm is maintained in the distribution system. Polyphosphate is also used for corrosion control and coating of the pipes to prevent the leaching of lead and copper from household plumbing into the drinking water.*

## Keeping Pharmaceuticals Out of Our Water

Recent reports on pharmaceuticals in the water have increased public concern. Tests have found trace amounts of pharmaceuticals in lakes and rivers which eventually make their way to groundwater.

Today's advanced technology has allowed scientists to detect more substances – at lower levels – than ever before. To date, however, research throughout the world has not demonstrated an impact on human health from pharmaceuticals in drinking water at the trace levels at which they have been found. People regularly consume or expose themselves to products containing these compounds in much higher concentrations through medicines, food and beverage and other sources.

The ongoing conversation about these substances should remind us of how precious our source waters are and the need to protect them. The best and most cost-effective way to ensure safe water at the tap is to keep our source waters clean.

For many years we were told to flush any leftover prescriptions down the toilet to make sure they did not get into the hands of children. That recommendation has changed. Although studies indicate that wastewater treatment plants like the Rochester Water Reclamation Plant do break down most of the chemicals, the plant is not designed for that purpose and some percentage ends up passing through the plant and getting into the Zumbro River. Most authorities now recommend disposing of medicines in the trash after rendering them unusable. This can be done by dissolving pills in a small amount of water, then mixing with substances like coffee grounds or cat litter. Liquid medicines should also be mixed with absorbent materials before disposing in the trash. For more information on the proper disposal of prescription drugs see [www.whitehousedrugpolicy.gov/drugfact/factsht/proper\\_disposal.html](http://www.whitehousedrugpolicy.gov/drugfact/factsht/proper_disposal.html).

## Water Infrastructure

RPU has been steadily updating and improving its water system to sustain the needs of Rochester's growth. The water system is now serving more than 100,000 people. Listed below are facts about RPU's water infrastructure through 2007.

# of Wells	30
# of Fire Hydrants	6,598
# of Valves	14,530
Miles of Water Main	561.7
Gallons of Storage	12,230,000
Total Pumpage for 2007	5.1 billion gallons
Avg. Daily Pumpage	14 million gallons
Peak Day's Pumpage (8/1/07)	30.2 million gal/day

## Compliance with National Primary Drinking Water Regulations

Although all of Rochester's municipal water comes from groundwater wells, other sources of drinking water (both tap water and bottled water) include rivers, lakes, stream, 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.

Contaminants that may be present in source water include:

- ◆ Viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- ◆ Salts and metals, which can be naturally occurring or result from urban storm 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.
- ◆ Synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- ◆ Radioactive constituents, which can be naturally occurring.

The water is regularly evaluated for these possible contaminants.

In order to ensure that tap water is safe to drink, the U.S. Environmental Protection Agency (EPA) prescribes regulations which 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.

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 Safe Drinking Water Hotline, 800-426-4791** ([www.epa.gov/safewater/hfacts.html](http://www.epa.gov/safewater/hfacts.html)), or the **Minnesota Department of Health, 651-215-5800** ([www.health.state.mn.us](http://www.health.state.mn.us)).

## Results of Monitoring

No contaminants were detected at levels that violated federal drinking water standards. However, some contaminants were detected in trace amounts that were below legal limits.