There’s a place where the water is clean and refreshing... perfect for drinking.

There is a place where the water is protected 24 hours a day by dedicated men and women keeping it clean, safe and plentiful.

But you don’t have to travel far to find this place.

Because this place...is right at home.

This water is tap water.
GRAND RAPIDS WATER SYSTEM
2005 WATER QUALITY REPORT

Water is essential. If you think about it, your use of water is a constant throughout the day. The City of Grand Rapids Water System customers continue to receive water that meets or exceeds standards that state and federal regulations require. To ensure 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 2005 Water Quality Report provides our customers with specific data regarding the quality of your drinking water. The statistics listed in the table, located within this report, are water monitoring results from January 1, 2005 to December 31, 2005. This table is designed to summarize the information collected from the thousands of samples taken during the year to ensure water quality. It should be noted that we are required to indicate the highest test results during this 12-month period. These numbers may not be necessarily characteristic of typical water quality for the Grand Rapids Water System.

En Espanol: Este informe contiene informacion muy importante sobre su agua beber. Traducxalo ó hable con alguien que lo entienda bien.

Are you drinking enough water?

All known forms of life depend on water. Water is a vital part of many metabolic processes within the body. The average adult body is 75% water. Various studies and guidelines indicate a healthy person should drink about 8-15 glasses of water a day. Men should, on average, drink more water than women.

Water helps with digestion and absorption of food. Water regulates body temperature, carries nutrients and oxygen to cells and removes toxins and other wastes. Water also cushions joints and protects tissues and organs, including the spinal cord, from shock and damage. Lack of water (dehydration) can be the cause of some ailments.

Did you know that water plays a major part in weight loss? Because water contains no calories, it can serve as an appetite suppressant and helps the body metabolize stored fat. Drinking more water helps to reduce water retention by stimulating the kidneys. A study by the University of Washington draws the following conclusions. The lack of water is the number one trigger of daytime fatigue. Preliminary research indicates that 8-10 glass of water a day could significantly ease back pain for up to 80% of sufferers.

<table>
<thead>
<tr>
<th>Percent Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain</td>
</tr>
<tr>
<td>Heart</td>
</tr>
<tr>
<td>Lungs</td>
</tr>
<tr>
<td>Kidneys</td>
</tr>
<tr>
<td>Blood</td>
</tr>
<tr>
<td>Muscles</td>
</tr>
</tbody>
</table>
Price Per Gallon:

While drinking water is essential to life and readily available, most people do not realize how inexpensive it is. Tap water continues to be one of the only items that can be purchased for less than one cent per gallon. The following are some prices if you were to purchase a gallon of these items.

- Gasoline: $2.90
- Milk: $1.88
- Orange Juice: $3.99
- Liquid Laundry Detergent: $3.84
- Mouthwash: $3.84
- Brand Name Soft Drink: $3.84
- Bottled Water: $0.80 - $2.99+

Bottled vs. Tap:

It is becoming increasingly popular to buy bottled water. Some people do it for convenience or feel it's the "in thing" to do. In some instances, individuals buy bottled water because they think it's safer to drink than tap water. They may want to keep their money in their wallets.

The Natural Resources Defense Council conducted a four-year study of the bottled water industry and the safety standards that govern it, including a comparison of national bottled water rules with national tap water rules and independent testing of over 1,000 bottles of water. Their conclusion was "...there is no assurance that just because water comes out of a bottle it is any cleaner or safer than water from the tap. And in fact, an estimated 25% or more of bottled water is really just tap water in a bottle—sometimes further treated."

The question may come down to regulation. The Environmental Protection Agency (EPA) is in charge of regulating tap water. The Food and Drug Administration (FDA) is in charge of regulating bottled water. Of the two agencies, the EPA is much stricter.

Municipal water systems are required to have water regularly tested by certified labs, tap water results must be reported to state or federal officials and water system operators must be certified. These same requirements do not apply to the FDA regulated bottled water industry. Industry officials agree that bottled water producers encounter fewer regulatory hurdles in bringing their products to the shelf.

The debate over bottled water vs. tap water will continue. It's a personal choice, but think about the following reasons for using tap water:

- Free refills at participating faucets
- Refill vs. Landfill
- No carbs: Go ahead and super size it
- Home delivery 24/7 for just pennies
About Contaminants:

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 animals or from human activity.

Contaminants that may be present in source water include: Microbial contaminants such as viruses and bacteria which may have 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; and Radioactive contaminants can be naturally-occurring or be the result of oil and gas production and mining activities.

Water Quality Table Key and Definitions

**MCL** - Maximum Contaminant Level: This is the highest level of a substance that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

**MCLG** - Maximum Contaminant Level Goal: The level of a substance in drinking water below which there is no known or expected health risk. MCLG’s allow for a margin of safety.

**MRDL** - Maximum Residual Disinfectant Level: The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

**MRDLG** - Maximum Residual Disinfectant Level Goal: The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

**ppm** - Parts per Million: You win a one million-dollar lottery. You give a friend one dollar. That’s 1 ppm.

**ppb** - Parts per Billion: your rich uncle passes away and leaves you $10 million. However, in counting your inheritance, you discover that 1 cent is missing. That’s 1 ppb.

**pCi/l** - Picocuries per Liter: Measure of the radioactivity in water.

**Turbidity** - A measure of the clarity of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

**NTU** - Nephelometric Turbidity Unit: Measurements of the minute suspended particles. Used to judge water clarity.

**TT** - Treatment Technique: A required process intended to reduce the level of a substance in drinking water.

**AL** - Action Level: The amount of a substance when exceeded requires a treatment or other response by a water system.

**n/a** - Not applicable

**n/d** - not detected
# 2005 Water Quality Data

## Regulated at the Treatment Plant

<table>
<thead>
<tr>
<th>Substance</th>
<th>Units</th>
<th>Range of Detections</th>
<th>Highest Level Detected</th>
<th>MCL</th>
<th>MCLG</th>
<th>Violations</th>
<th>Likely Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined Radium (tested in 2002)</td>
<td>pCi/L</td>
<td>1.9</td>
<td>1.9</td>
<td>5</td>
<td>0</td>
<td>No</td>
<td>Erosion of natural deposits</td>
</tr>
<tr>
<td>Barium</td>
<td>ppm</td>
<td>0.019 - 0.022</td>
<td>0.022</td>
<td>2</td>
<td>2</td>
<td>No</td>
<td>Erosion of natural deposits</td>
</tr>
<tr>
<td>Chromium</td>
<td>ppb</td>
<td>1.0 - 1.9</td>
<td>1.9</td>
<td>100</td>
<td>100</td>
<td>No</td>
<td>Erosion of natural deposits</td>
</tr>
<tr>
<td>Fluoride</td>
<td>ppm</td>
<td>0.9 - 1.2</td>
<td>1.2</td>
<td>4</td>
<td>4</td>
<td>No</td>
<td>Water additive which promotes strong teeth</td>
</tr>
<tr>
<td>Nitrate</td>
<td>ppm</td>
<td>n.d. - 0.5</td>
<td>0.5</td>
<td>10</td>
<td>10</td>
<td>No</td>
<td>Erosion of natural deposits</td>
</tr>
<tr>
<td>Turbidity*</td>
<td>NTU</td>
<td>0.015 - 0.153</td>
<td>0.153</td>
<td>TT</td>
<td>n/a</td>
<td>No</td>
<td>Soil runoff</td>
</tr>
</tbody>
</table>

*Our treatment for turbidity was in 100% compliance of the regulatory limit. We are allowed a minimum of 95% compliance.*

## Regulated in the Distribution System

<table>
<thead>
<tr>
<th>Substance</th>
<th>Units</th>
<th>Range of Detections</th>
<th>Maximum Running Annual Average</th>
<th>MCL or MRDL</th>
<th>MCLG or MRDLG</th>
<th>Violations</th>
<th>Likely Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine Residual</td>
<td>ppm</td>
<td>0.09 - 1.59</td>
<td>0.9</td>
<td>4</td>
<td>4</td>
<td>No</td>
<td>Water additive used to control microbes</td>
</tr>
<tr>
<td>Haloacetic Acids</td>
<td>ppb</td>
<td>12.7 - 46.5</td>
<td>23.7</td>
<td>60</td>
<td>n/a</td>
<td>No</td>
<td>By-product of drinking water chlorination</td>
</tr>
<tr>
<td>Total Coliforms</td>
<td>% Positives</td>
<td>0 - 0.6</td>
<td>0.6**</td>
<td>5</td>
<td>0</td>
<td>No</td>
<td>Naturally present in the environment</td>
</tr>
<tr>
<td>Total Trihalomethanes</td>
<td>ppb</td>
<td>25.5 - 53.6</td>
<td>37.0</td>
<td>80</td>
<td>n/a</td>
<td>No</td>
<td>By-product of drinking water chlorination</td>
</tr>
</tbody>
</table>

**Highest monthly percentage of positive samples (1 out of 162 samples).**

## Regulated at the Customer's Tap

<table>
<thead>
<tr>
<th>Substance</th>
<th>Units</th>
<th>Range of Detections</th>
<th>90th Percentile</th>
<th>AL</th>
<th>MCLG</th>
<th># of Samples exceeding AL</th>
<th>Likely Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper (tested in 2004)</td>
<td>ppm</td>
<td>n.d. - 0.297</td>
<td>0.057</td>
<td>1.3</td>
<td>1.3</td>
<td>0</td>
<td>Corrosion of household plumbing system</td>
</tr>
<tr>
<td>Lead (tested in 2004)</td>
<td>ppb</td>
<td>n.d. - 58</td>
<td>4</td>
<td>15</td>
<td>0</td>
<td>1</td>
<td>Corrosion of household plumbing system</td>
</tr>
</tbody>
</table>

## Unregulated Contaminants

<table>
<thead>
<tr>
<th>Substance</th>
<th>Units</th>
<th>Range of Detections</th>
<th>Average</th>
<th>Likely Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodium</td>
<td>ppm</td>
<td>7 - 10</td>
<td>8</td>
<td>Mineral and nutrient</td>
</tr>
</tbody>
</table>

No Cryptosporidium Detected - Sampling done at the Lake Michigan Filtration Plant indicates that our source water is considered a low risk for Cryptosporidium and Giardia contamination. During this reporting period, neither of these organisms were detected in any samples collected from our source water or our treated tap water.

*Key*

- ppm = parts per million
- n.d. = not detected
- pCi/L = picocuries per liter
- MCL = Maximum Contaminant Level
- MCLG = Maximum Contaminant Level Goal
- MRDL = Maximum Residual Disinfection Level
- NTU = nephelometric turbidity units
- AL = action level
- MRDLG = Maximum Residual Disinfection Level Goal
Special Information:

Please note that drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The EPA establishes limits and regulates the amount of contaminants allowed in drinking water provided by public water systems. Though contaminants are present, it does not necessarily indicate the water poses a health risk. We treat our water according to EPA regulations.

US Environmental Protection Agency's health-based standards for drinking water are generally safe, but 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, children and infants can be at risk from infections. These people should seek advice from their health care providers.

More information on potential health effects of specific contaminants can be obtained by contacting the Environmental Protection Agency's Safe Drinking Water Hotline at 1(800) 426-4791 or their website at http://www.epa.gov/safewater

Source Water Assessment

Lake Michigan is the sole source of water treated for the Grand Rapids Water System. This is considered a surface water source. The Michigan Department of Environmental Quality (MDEQ) completed a Source Water Assessment for the City of Grand Rapids water supply in 2003. This assessment evaluates the potential risk of contamination based on several factors including geologic sensitivity, water chemistry and contaminant sources. Risk assessment is critical in protecting the source water from future contamination. Environmental contamination is not likely to occur when potential contaminants are used and managed properly.

A Source Water Assessment for surface water uses a 7-tiered rating scale ranging from "moderately low" to "very high." The susceptibility of our source water to potential contamination was given a rating of moderately high. This rating is typical for surface water sources in the region. The geographic area in this assessment covers 708 square miles and includes several watersheds from Holland to Muskegon. The current or historical industrial, residential or agricultural use, production, storage, transport or disposal of any of the MDEQ's listed potential contaminants within this entire area minimally requires a moderately high susceptibility ranking.

The Grand Rapids Water Treatment Plant routinely and continuously monitors the water for a variety of chemicals to assure safe drinking water. Industrial chemicals have not been detected in our source or treated water. The Grand Rapids Water System continues to be involved in and supports watershed protection efforts.

Anyone wanting additional information about the Source Water Assessment or questions concerning the water quality testing results within this report may contact:

John Wierenga
Water Filtration Plant Superintendent
Phone: (616) 456-3700 or jwiereng@ci.grand-rapids.mi.us

Patty Chapman
Chemist II
Phone: (616) 456-3700 or pchapman@ci.grand-rapids.mi.us
Information about Lead

In addition to the routine lead and copper sampling conducted in 2004, the MDEQ requested the City of Grand Rapids conduct additional distribution system lead sampling in 2005. This was requested to monitor the impacts of a temporary treatment change. A total of 15 samples were collected in the City of Grand Rapids distribution system, between August and November 2005. The average lead concentration from these samples was 4 ppb (parts per billion), with a minimum of <1 ppb and a maximum of 10 ppb. These results were similar to the testing completed in 2004 and indicate the temporary treatment change had little to no effect on the lead concentrations in the distribution system.

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home’s plumbing. We recommend to our customers that if there has been no water usage within 6 hours, you may need to flush the plumbing system for 4 minutes or longer. Flushing can be accomplished by a shower, doing laundry, doing dishes, lawn sprinkling or flushing a toilet 2 or more times in combination with flushing the faucet. If you flush your faucet you will decrease your exposure to the effects of your plumbing. Additional information is available from the Safe Drinking Water Hotline (800) 426-4791.

The Grand Rapids City Commission, which sets policies for the Water System, meets on Tuesdays. For meeting dates and times call 456-3168.

This report is available on the internet through the City’s website at: http://www.ci.grand-rapids.mi.us

The Grand Rapids Water System staff strives to produce quality water and provide reliable delivery that meets our consumer's needs. We continue to support the orderly growth and economic stability of the community.

The Grand Rapids Water System Serves
Customers in:
Ada Township
Cascade Township
East Grand Rapids
Grand Rapids
Grand Rapids Township
Kentwood
Tallmadge Township
Walker
Portions of Ottawa County