Message from the Mayor

We may take it for granted, but Seattle’s drinking water is one of the many things that makes our region special and adds to our quality of life. We’re fortunate to enjoy safe and excellent tasting water from our snow-covered mountains and the pristine Cedar and Tolt River watersheds. We’re also protecting water quality by covering our reservoirs, which creates acres of new open space in our neighborhoods.

The Environmental Protection Agency requires an annual water quality report from all community water systems nationwide. Here in Seattle, we’re pleased to share the results. So let’s celebrate our high-quality water—and drink up, Seattle.

Greg Nickels
Mayor of Seattle

Saving water: How’s our progress?

We’re all working together to reduce water consumption—indeed, Seattle Public Utilities (SPU) and its 17 water district partners, the Saving Water Partnership, won the Environmental Protection Agency’s WaterSense Partner of the Year for our creative water-saving programs. Our business customers have really pulled their weight by contributing 46 percent of our conservation savings in 2008. SPU has done its job reducing distribution system leakage through our reservoir-covering program that reduces evaporation. And you, our customer, have continued to replace wasteful showerheads and washing machines, taken shorter showers, fixed leaks, washed full loads, and watered lawns wisely. Keep it up. Please visit www.savingwater.org for more information about water conservation.

Healthier fish

Water conservation helps salmon, as well as your pocketbook. The foundation for a healthy salmon run is a healthy habitat—meaning water flow and water quality. Your actions to conserve water, particularly in the summer and early fall when flows are lowest, helps provide the habitat necessary for a healthy salmon population.

Reservoir covering

As resources get stretched, every project we use taxpayer dollars for has to offer multiple benefits. Our reservoir-covering program—which will create 76-acres of new public open space—is one example of a multiple-benefit project. Reservoir covering improves water quality and saves costs by reducing chlorine requirements and increases security. And when they are covered with grass, reservoirs become open space we all can enjoy. Talk about a win-win!

History of Seattle’s water system

Foresight and events conspire for great water quality

Seattle’s water system sprang from two major events: the Great Fire of 1889 and the Klondike Gold Rush of 1897. The first showed the dire necessity for a municipally-owned, gravity-fed water supply. The second helped provide the funds to pay for it. Though it was initially expensive to purchase the land and build the pipeline, the Cedar River system is now one of the most pristine watersheds in the nation.
Important facts to know about your water quality...

Raw water

This part of the chart is for our water at the source, before it’s treated. Because our water comes from large, protected water-sheds, our raw water starts cleaner than most municipalities. In Seattle’s surface water supplies, the potential sources of contamination include microbial contaminants, such as viruses, bacteria, and protozoa from wildlife; organic contaminants, such as salts and metals, which are naturally occurring; and organic contaminants, which result from chlorine combining with the naturally occurring organic matter.

Finished water

After treatment, our high-quality finished water is ready for consumption. There are very few contaminants in our finished water, and those we do detect are at levels well below the allowable amounts.

Trihalomethanes

You have to treat surface water with chlorine to prevent microbial growth. But a by-product of the chlorination process is trihalomethanes and halocetic acids, which are linked to cancer. In Seattle’s water, because it starts off clean and we use our reserves, we can use less chlorine and as a result, we have rates of these compounds well within safe ranges.

EPA’s Allowable Limits

<table>
<thead>
<tr>
<th>Detected Compounds</th>
<th>Units</th>
<th>MCLG</th>
<th>MCL</th>
<th>Average</th>
<th>Range</th>
<th>Average</th>
<th>Range</th>
<th>Typical Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Water</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Organic Carbon</td>
<td>ppm</td>
<td>NA</td>
<td>TT</td>
<td>0.8</td>
<td>0.4  to 1.3</td>
<td>1.3</td>
<td>1.1 to 1.5</td>
<td>Naturally present in the environment</td>
</tr>
<tr>
<td>Cryptosporidium 8/100L</td>
<td>ppm</td>
<td>NA</td>
<td>NA</td>
<td>ND</td>
<td>2 ND</td>
<td>ND</td>
<td>ND</td>
<td>Naturally present in the environment</td>
</tr>
<tr>
<td>Turbidity NTU</td>
<td>ppm</td>
<td>NA</td>
<td>TT</td>
<td>0.4</td>
<td>0.2 to 2.6</td>
<td>0.56</td>
<td>0.04 to 0.23</td>
<td>Soil runoff</td>
</tr>
<tr>
<td>Chlorine ppm</td>
<td>ppm</td>
<td>0.10</td>
<td>ND</td>
<td>0.05</td>
<td>0.05 to 0.7</td>
<td>0.13</td>
<td>ND to 0.73</td>
<td>Byproduct of drinking water disinfection</td>
</tr>
<tr>
<td>Nitrate ppm</td>
<td>ppm</td>
<td>10</td>
<td>ND</td>
<td>10</td>
<td>8 to 58</td>
<td>45</td>
<td>7 to 60</td>
<td>Erosion of natural deposits</td>
</tr>
<tr>
<td>Barium ppm</td>
<td>ppm</td>
<td>2000</td>
<td>2000</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>Byproducts of drinking water chlorination</td>
</tr>
<tr>
<td>Total Trihalomethanes ppm</td>
<td>ppm</td>
<td>NA</td>
<td>80</td>
<td>28</td>
<td>8 to 58</td>
<td>45</td>
<td>7 to 60</td>
<td>Byproducts of drinking water chlorination</td>
</tr>
<tr>
<td>Haloacetic Acid(5) ppm</td>
<td>ppm</td>
<td>NA</td>
<td>80</td>
<td>28</td>
<td>8 to 58</td>
<td>45</td>
<td>7 to 60</td>
<td>Byproducts of drinking water chlorination</td>
</tr>
<tr>
<td>Total Coliform</td>
<td>% positive samples</td>
<td>0</td>
<td>5%</td>
<td>Highest Month = 2.1% Annual Average = 0.29%</td>
<td>Naturally present in the environment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorine ppm</td>
<td>MCLG</td>
<td>4</td>
<td>MCLG</td>
<td>4</td>
<td>Average = 0.9 Range = 0 to 1.9</td>
<td>Water additive used to control microbiota</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Cryptosporidium was detected in one of three samples from the Cedar and one of four samples from the Tolt.

Definitions:
- MCLG: Maximum Contaminant Level Goal - The 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.
- MCL: Maximum Contaminant Level - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG as feasible using the best available treatment technology.
- MRL: Maximum Residual Disinfectant Level - The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- MRLG: Maximum Residual Disinfectant Level Goal - The level of a disinfecting agent allowed in drinking water. There is convincing evidence that addition of a disinfecting agent is necessary for control of microbial contaminants.

Lead and Copper Monitoring Results

<table>
<thead>
<tr>
<th>Parameter and Units</th>
<th>MCLG</th>
<th>Action Level</th>
<th>2007 Results</th>
<th>Homes Exceeding Action Level</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead, ppm</td>
<td>0</td>
<td>15</td>
<td>6</td>
<td>1 of 50</td>
<td>Corrosion of household plumbing systems.</td>
</tr>
<tr>
<td>Copper, ppm</td>
<td>1.3</td>
<td>1.3</td>
<td>0.14</td>
<td>0 of 50</td>
<td></td>
</tr>
</tbody>
</table>

Note: (a) Residues; (b) 30% percent of the sample was less than the value shown. (c) The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

What is missing from this chart?

No news is good news. More than 179 things we test for are absent from Seattle’s water, and so are not on the chart. We looked for pharmaceuticals, fecal coliform, phthalates (bottle plastics linked to certain cancers—one more reason to drink tap water), biophenol A, atrazine, parathion, arsenic, and cyanide, and found none.

Cryptosporidium

Although very low levels of Cryptosporidium have been detected in our raw water, our treatment processes are very effective at destroying any that are found. 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. Environmental Protection Agency/ 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).

Chlorine

Chlorine prevents water borne diseases like cholera, giardiasis, and salmonellosis. But too much makes the water smell and taste bad, and it can combine with organic materials to produce other contaminants. Our chlorine is at one quarter the allowable limit.

Testing methodology

We test the water at different stages and locations. First, we test the raw water at the source. Then, we test the water after it’s been treated by aeration, UV, filtration and chlorination to ensure we’re well within EPA standards for contaminants. Then, we sample the water at dozens of distribution sites and at the reservoirs to make sure the quality is maintained. And finally, to check for lead and copper, we test at certain high-risk households. While SPU is not responsible for water quality issues connected to household pipes, we encourage the water getting to houses meets EPA standards.

About our water

Our watersheds are a thing of beauty: two pristine, Cascade Mountain, snow-fed watersheds, with none of the development runoff, garbage, sewage, or other sources of contaminants that might impact our water’s quality. The majority of our water comes from the Cedar River watershed: the rest from the Tolt River watershed. We also have three wells, used for less than one percent of our water usage.

Besides SPU’s own testing, water sources are also assessed by the state Department of Health (DOH). According to DOH, all surface waters in Washington are given a susceptibility rating of “high,” regardless of whether contaminants have been detected or whether there are any sources of contaminants in the watershed. The Seattle wells have been given a susceptibility rating of “low,” because of the type of aquifer, depth of well, and lack of contaminant detection. Information on the source water assessments is available from the DOH website at https://fortress.wa.gov/doh/ehd/ dwv/watmpa/s/

These results are for those aspects of water quality regulated by the government. For other water quality information, please go to www.seattlewater.org or call 206-615-0827.

Water quality monitoring data can be difficult to interpret. To make all the information fit in one table, we used many acronyms that are defined below the table. In Seattle, if you live south of Green Lake, your water probably comes from the Cedar River. Areas north of Green Lake usually receive Tolt water. Each source can provide water to other areas in Seattle if needed.

Saving water = saving money

As the charts show, we’re on track with our water conservation goals. This is due to both your improving water usage habits, as well as a softer economy. A special thank you is due to apartment building owners this year, as many of them took advantage of our multifamily showerhead and high-efficiency toilet programs.

SPU supplied 45.1 billion gallons of drinking water in 2008, of which 1.5 billion gallons were lost to leakage or were otherwise unaccounted for. This represents a system wide leakage rate of 3.4%, low compared with most other water utilities. And we are working to reduce it even more.

*Note: that the system wide leakage rate was incorrectly reported as 7% in the copy of this report mailed out to customers.

Total Seattle Regional Water System Annual Demand in Millions of Gallons per Day: 1930-2008


Visit www.seattlewater.org