

ANNUAL WATER QUALITY REPORT

Water testing performed in 2007



PWS ID#: WA363505

Meeting the Challenge

We are once again proud to present to you our annual water quality report. This edition covers all testing completed from January 1, 2007 through December 31, 2007. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal drinking water standards. We continually strive to adopt new and better methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please share with us your thoughts about the information in this report. After all, well-informed customers are our best allies.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. The Issaquah City Council meets the first and third Monday of each month, beginning at 7:30 p.m. Meetings are held in the Council Chambers located at City Hall South, 135 East Sunset Way. The Utilities Committee meets the first Thursday of each month, beginning at 5:00 p.m. Meetings are held at City Hall Northwest at 1775 12th Avenue NW. All meeting information can be located on the City's web site, www.ci.issaquah.wa.us.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

Where Does My Water Come From?

The major portion of the Issaquah water system is a groundwater source served by four wells: two in the northeast section of Issaquah and two in the northwest section. The wells are deep: two are 100 feet deep, one is 200 feet deep, and one is 400 feet deep. The water is conveyed through 100 miles of water main, through 12 water booster stations and stored in one of 19 reservoirs. Total water storage is just over 12 million gallons. The 2007 well water production was just under 445 million gallons of high-quality drinking water, delivered to approximately 15,000 customers through just over 5,000 water connections. Issaquah also has emergency water connections with the Sammamish Plateau Water and Sewer District, allowing the City to access additional fire storage volumes.

The Cascade Water Alliance (CWA) continues to provide water to the Issaquah Highlands and Talus urban villages, and the Montreux and Lakemont areas. Water purchased from the CWA is fluoridated whereas Issaquah well water is not. Issaquah's well water and CWA's water are not mixed and the distribution systems are separate.



The CWA, a regional drinking water supplier, purchases water from Seattle and provides it to Issaquah and other members. Eight municipalities and water districts in King County make up Cascade's membership. The water source originates at the City of Seattle's South Fork Tolt River and Cedar River watersheds. The watersheds, owned by Seattle Public Utilities, are located in remote, uninhabited areas in the Cascade mountains. Seattle enforces an aggressive watershed protection program; agriculture and industrial activities are not allowed. The Washington State Department of Health has designated both sources as having a low vulnerability to contamination. Seattle processes its drinking water with filtration and disinfection, with adjustments for pH (for water hardness), and finally, fluoridation. To learn more about Seattle's watersheds, visit the U.S. EPA's Surf Your Watershed Web site at www.epa.gov/surf.

Substances That Could Be in Water

In order to ensure that tap water is safe to drink, the U.S. EPA and/or the Washington state board of health prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration 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 these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include:

Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may 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 by-products of industrial processes and petroleum production, and may also come from gas stations, urban stormwater runoff, and septic systems;

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

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Tap vs. Bottled

Thanks in part to aggressive marketing, the bottled water industry has successfully convinced us all that water purchased in bottles is a healthier alternative to tap water. However, according to a four-year study conducted by the Natural Resources Defense Council (NRDC), bottled water is not necessarily cleaner or safer than most tap water. In fact, the study estimates about 25% of bottled water is actually just bottled tap water, though government estimates are closer to 40%.

The U.S. Food and Drug Administration (FDA) is responsible for regulating bottled water, but these rules allow for less rigorous testing and purity standards than those required by the U.S. EPA for community tap water. For instance, the high mineral content of some bottled waters makes them unsuitable for babies and young children. Further, the FDA completely exempts bottled water that's packaged and sold within the same state, which accounts for about 70% of all bottled water sold in the United States.

People spend 10,000 times more per gallon for bottled water than they typically do for tap water. If you get your recommended eight glasses a day from bottled water, you could spend up to \$1,400 annually. The same amount of tap water would cost about 49 cents. Even if you installed a filter device on your tap, your annual expenditure would be far less than what you'd pay for bottled water.

For a detailed discussion of the NRDC study results, check out their Web site at www.nrdc.org/water/drinking/bw/exesum.asp.



Questions?

For more information about this report, or for any questions relating to your drinking water, please call Gregory P. Keith, Manager of Water Operations for the City of Issaquah, at (425) 837-3470.

Water Conservation

You can play a role in conserving water and saving yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 gallons to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and appliances that use water. Then check the meter after 15 minutes. If the meter moved, you have a leak.



Cryptosporidium in Drinking Water

Cryptosporidium is a microbial parasite found in surface water throughout the United States. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100% removal. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctors regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

The Lower Issaquah Valley Aquifer water source is a well-water source and therefore is not required to be tested for *Cryptosporidium*.

In 2007, the CWA water source was monitored for *Cryptosporidium*. The results denoted low levels of the organism; *Cryptosporidium* was detected in four of the ten samples collected from the Cedar supply; *Cryptosporidium* was not detected in any of the eight Tolt samples. The levels found were very low when compared to typical rivers and streams throughout the country. There have been no disease outbreaks associated with Issaquah's drinking water. Although chlorination is not effective against *Cryptosporidium*, ozone disinfection, conducted at the Cedar and Tolt treatment plants, is very effective at destroying *Cryptosporidium* and other microbes.

Lead and Drinking Water

If present, 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 your home's plumbing. The City of Issaquah is responsible for providing high-quality drinking water but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to two minutes before using the water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure are available from the Safe Drinking Water Hotline at (800) 426-4791 or at www.epa.gov/safewater/lead.



Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The following tables show only those contaminants that were detected in the water. Although all of the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water.

Because the concentrations of certain substances does not fluctuate frequently, Washington State Department of Health does not require annual testing for all of these substances. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES				Lower Issaquah Valley Aquifer: Wells 1, 2, 4, 5	CWA-Cedar Supply (Montreux, Lakemont, Issaquah Highlands, Talus)	CWA-Tolt Supply (Montreux, Lakemont, Issaquah Highlands, Talus)					
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Arsenic ¹ (ppb)	2007	10	0	9.9	ND–9.9	ND	NA	ND	NA	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2007	2	2	ND	NA	0.0019	NA	0.0022	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2007	[4]	[4]	0.32	0.02–1.83	0.47	0.03–1.11	0.47	0.03–1.11	No	Water additive used to control microbes
Fluoride (ppm)	2007	4	4	NA	NA	0.85	0.6–1.0	1.0	0.2–1.1	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2007	60	NA	0.47	ND–2.9	28.83	14.1–49	28.83	14.1–49	No	By-product of drinking water disinfection
Nitrate (ppm)	2007	10	10	ND	NA	0.045	NA	0.093	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2007	80	NA	2.56	ND–6.7	48.71	22.1–63.7	48.71	22.1–63.7	No	By-product of drinking water chlorination
Total Coliform Bacteria (# positive samples)	2007	1 positive monthly sample	0	1 ²	NA	ND	NA	ND	NA	No	Naturally present in the environment
Turbidity ³ (NTU)	2007	TT	NA	NA	NA	1.9	0.2–1.9	0.38	0.01–0.38	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2007	TT	NA	NA	NA	100	NA	100	NA	No	Soil runoff

Tap water samples were collected from 63 sample sites throughout the community.

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	ACTION LEVEL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE ACTION LEVEL	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2006	1.3	1.3	0.35	0	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2006	15	0	4.8	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

INITIAL DISTRIBUTION SYSTEM EVALUATION ⁴				Lower Issaquah Valley Aquifer: Wells 1, 2, 4, 5	CWA-Cedar Supply (Montreux, Lakemont, Issaquah Highlands, Talus)	CWA-Tolt Supply (Montreux, Lakemont, Issaquah Highlands, Talus)					
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE	
Haloacetic Acids [HAA]- IDSE Results (ppb)	2007	ND	NA	25.73	17.9–33	25.73	17.9–33	25.73	17.9–33	By-product of drinking water disinfection	
TTHMs [Total Trihalomethanes]-IDSE Results (ppb)	2007	1.28	ND–2.73	56.9	18.9–66.6	56.9	18.9–66.6	56.9	18.9–66.6	By-product of drinking water disinfection	

¹ Wells 1, 2, 4, 5: The 9.9 ppb amount detected is from our well 5 source. Our well 4 source had 3.1 ppb. The other two wells, our primary sources, had an “ND” result. Well 5 is used during the summer’s peak usage period and, when used, is blended with the other three wells. These arsenic MCL values became effective January 23, 2006; the prior MCL was 50 ppb and there was no MCLG. Though your drinking water meets the U.S. EPA’s standard for arsenic, it still contains low levels of arsenic. The U.S. EPA’s standard balances the current understanding of arsenic’s possible health effects against the costs of removing arsenic from drinking water. The U.S. EPA continues to research the health effects of low levels of arsenic, a mineral known to cause cancer in humans at high concentrations and linked to adverse health effects such as skin damage and circulatory problems.

² All of the follow-up samples were satisfactory, indicating that there was not a problem with the drinking water.

³ Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

⁴ Our public water system was required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products are the result of continuous disinfection of your drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCL (Maximum Contaminant Level): The highest level of a contaminant 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 contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

MRDL (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.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a 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.

NA: Not applicable.

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.