



ANNUAL
**WATER
QUALITY
REPORT**

Water testing performed in 2009



PWS ID#: 363505

Maintaining High Standards

Once again we are proud to present our annual water quality report. This report covers all testing performed between January 1, 2009, and December 31, 2009. We have maintained our high standards in an effort to continue delivering the best quality drinking water possible. We encourage you to share your thoughts with us on the information contained in this report. Should you ever have questions, we are available to assist you.

Testing for *Cryptosporidium*

Cryptosporidium is a microbial parasite found in surface water throughout the U.S. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100 percent removal. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immune-compromised people are at greater risk of developing life-threatening illness. We encourage immune-compromised individuals to consult their doctor 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 ground water source and therefore is not required to be tested for *Cryptosporidium*.

In 2009, the CWA water source was monitored for *Cryptosporidium*. The results denoted no levels of the organism. For the Cedar, *Cryptosporidium* was detected in 0 of 4 samples collected, and for the Tolt supply, *Cryptosporidium* was detected in 0 of 4 samples.

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 Council Utilities, Technology and Environmental Committee (UTEC) meets the second Tuesday of each month, beginning at 5:30 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.

Where Does My Water Come From?

The major portion of the Issaquah water system is a ground water 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. Chlorine is added at the well sites as a disinfectant to destroy any harmful microorganisms. The City's water is conveyed through 102 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 2009 combined well and purchased water production was 751 million gallons of high-quality drinking water, delivered to approximately 16,200 customers through just over 6,500 water connections. Issaquah's well water and purchased water are not mixed, as the distribution systems are separated. Issaquah also has emergency water connections with the Sammamish Plateau Water and Sewer District, allowing the City to access additional fire storage volumes.

We continue to provide purchased water from the Cascade Water Alliance (CWA) to the Issaquah Highlands, Montreux, and the Lakemont areas. The Issaquah Highlands water source, from January 1 to January 5, 2009, was the City's well source and was returned to CWA water on January 5, 2009. Water purchased from the CWA is fluoridated, whereas Issaquah well water is not, with the exception of the Talus urban village area.

The CWA, a regional drinking water supplier, consists of eight municipalities and water districts in King County, including Issaquah. Cascade Water Alliance in 2009 completed the purchase of Lake Tapps in Pierce County for use as a future municipal water source. In addition, it purchases water from Seattle and Tacoma, and is in the process of obtaining additional sources from them. This allows CWA to determine the best option for bringing clean, safe, reliable water to its members today, and well into the future.

Currently, the Cascade Water Alliance water source originates at the City of Seattle's South Fork Tolt River and Cedar River watersheds. 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 adds fluoride. To learn more about Seattle's watersheds, visit the U.S. EPA's Surf Your Watershed site at www.epa.gov/surf.

Important Health Information

While your drinking water meets the U.S. EPA's standard for arsenic, it does contain 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, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-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 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 or www.epa.gov/safewater/hotline.

2009 Water Production and Purchases

The City's distribution system leakage is presented below:

| | |
|--------------------------------|-----------------------|
| WATER PRODUCTION AND PURCHASES | 751.1 million gallons |
| AUTHORIZED CONSUMPTION | 693.4 million gallons |
| DISTRIBUTION SYSTEM LEAKAGE | 57.6 million gallons |
| 2009 LEAKAGE | 7.7 percent |
| 3-YEAR AVERAGE | 9.1 percent |

Questions?

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



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 Department of Health prescribes 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.

Resource Efficient Water Management

Water conservation is a critical element of the community's strategy for protecting and managing our local and regional water resources. Since 1996, the Resource Conservation Office has worked actively with residents, businesses, schools, and City operations to conserve this important resource.

The City tracks water use as an important sustainability indicator to help manage progress toward long-term sustainability goals. Initial water conservation goals were adopted in 2008, targeting a savings of 51,000 gallons of water per day on an annual average basis and 67,000 gallons per day during the peak (summer) season by 2013.

In 2009, investments in water conservation saved an average of 29,900 gallons of water per day. This is in addition to approximately 33,000 gallons per day of water savings started in 2008. These add up to an estimated savings of more than 18 million gallons of water per year in just the last two years alone.

City engineering and operations professionals also work to reduce water losses in our water mains, reservoirs, and other infrastructure. In 2009, the City reduced system leakage to approximately 7.7 percent – significantly less than the state standard of 10 percent.

For more information about the water conservation programs offered by the City of Issaquah, please visit www.ci.issaquah.wa.us/rco or call (425) 837-3400. More information about the City's Sustainability Indicators project may be found online at www.ci.issaquah.wa.us/sustainability.

What's Your Water Footprint?

You may have some understanding about your carbon footprint, but how much do you know about your water footprint? The water footprint of an individual, community, or business is defined as the total volume of freshwater that is used to produce the goods and services that are consumed by the individual or community or produced by the business. For example, 11 gallons of water are needed to irrigate and wash the fruit in one half-gallon container of orange juice. Thirty-seven gallons of water are used to grow, produce, package, and ship the beans in that morning cup of coffee. Two hundred and sixty-four gallons of water are required to produce one quart of milk, and 4,200 gallons of water are required to produce two pounds of beef.

According to the U.S. EPA, the average American uses about 100 gallons of water daily. In fact, in the developed world, one flush of a toilet uses as much water as the average person in the developing world allocates for an entire day's cooking, washing, cleaning, and drinking. The annual American per capita water footprint is about 8,000 cubic feet; twice the global per capita average. With water use increasing six-fold in the past century, our demands for freshwater are rapidly outstripping what the planet can replenish.

To check out your own water footprint, go to www.h2oconserve.org, or visit www.waterfootprint.org to see how the water footprints of other nations compare.

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 home plumbing. We are 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 2 minutes before using 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 is available from the Safe Drinking Water Hotline or at www.epa.gov/safewater/lead.

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, bottled water is not necessarily cleaner or safer than most tap water. In fact, about 25 percent of bottled water is actually just bottled tap water (40 percent according to government estimates).

The Food and Drug Administration 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 percent 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 on the NRDC study results, check out their Web site at www.nrdc.org/water/drinking/bw/exesum.asp.

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 table below shows only those contaminants that were detected in the water.

Because the concentrations of certain substances do not fluctuate frequently, the 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

| 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 (ppb) | 2007 | 10 | 0 | 9.9 | ND-9.9 | ND ¹ | NA | ND ¹ | NA | No | Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes |
| Barium (ppm) | 2009 | 2 | 2 | NA | NA | 0.0012 | NA | 0.001 | NA | No | Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits |
| Chlorine (ppm) | 2009 | [4] | [4] | 0.39 | 0.02-1.2 | 0.52 | 0.04-1.26 | 0.52 | 0.04-1.26 | No | Water additive used to control microbes |
| Combined Radium (pCi/L) | 2009 | 5 | 0 | 1.11 | ND-1.11 | NA | NA | NA | NA | No | Erosion of natural deposits |
| Fluoride (ppm) | 2009 | 4 | 4 | 0.97 ² | 0.82-1.18 ² | 0.98 | 0.9-1.10 | 1.0 | 0.8-1.1 | No | Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories |
| Haloacetic Acids [HAA] (ppb) | 2009 | 60 | NA | ND | NA | 23.96 | 13.6-38.1 | 23.96 | 13.6-38.1 | No | By-product of drinking water disinfection |
| Nitrate (ppm) | 2009 | 10 | 10 | ND | NA | 0.07 ³ | NA | 0.15 ³ | NA | No | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits |
| TTTHMs [Total Trihalomethanes] (ppb) | 2009 | 80 | NA | 2.84 | ND-8.3 | 31.66 | 2.7-54.3 | 31.66 | 2.7-54.3 | No | By-product of drinking water chlorination |
| Turbidity ⁴ (NTU) | 2009 | TT | NA | NA | NA | 2.6 | 0.2-2.6 | 0.19 | 0.05-0.19 | No | Soil runoff |
| Turbidity ⁴ (Lowest monthly percent of samples meeting limit) | 2009 | TT | NA | NA | NA | NA | NA | 100 | NA | No | Soil runoff |

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AL | MCLG | AMOUNT DETECTED (90TH%TILE) | SITES ABOVE AL/TOTAL SITES | VIOLATION | TYPICAL SOURCE |
|--------------------------------|-----------------|-----|------|-----------------------------------|----------------------------------|-----------|--|
| | | | | | | | |
| Copper (ppm) | 2009 | 1.3 | 1.3 | 1.3 | 4/42 | No | Corrosion of household plumbing systems; Erosion of natural deposits |
| Lead (ppb) | 2009 | 15 | 0 | 6 | 1/42 | No | Corrosion of household plumbing systems; Erosion of natural deposits |

INITIAL DISTRIBUTION SYSTEM EVALUATION⁵

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AMOUNT DETECTED | SITES ABOVE AL/TOTAL SITES | VIOLATION | TYPICAL SOURCE | | |
|---|-----------------|--------------------|----------------------------------|-----------|----------------|--------------------|---|
| | | | | | | AMOUNT DETECTED | RANGE LOW-HIGH |
| Haloacetic Acids [HAA]-IDSE Results (ppb) | 2008 | 0.62 | 0.62 | ND-5 | 26.04 | 10.8-51.7 | By-product of drinking water disinfection |
| TTTHMs [Total Trihalomethanes]-IDSE Results (ppb) | 2008 | 0.24 | 0.24 | ND-1.3 | 35.92 | 26.9-46.1 | By-product of drinking water disinfection |

¹ Sampled in 2009.
² Talus Urban Village area only.
³ One sample.
⁴ Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of water quality and the effectiveness of disinfectants and the filtration system.
⁵ In 2008, we also were required by the U.S. EPA to conduct an evaluation of our distribution system, known as an Initial Distribution System Evaluation (IDSE) and intended to identify locations in our distribution system that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., Haloacetic Acids and Trihalomethanes) result from continuous disinfection of 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.

pCi/L (picocuries per liter): A measure of radioactivity.

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.