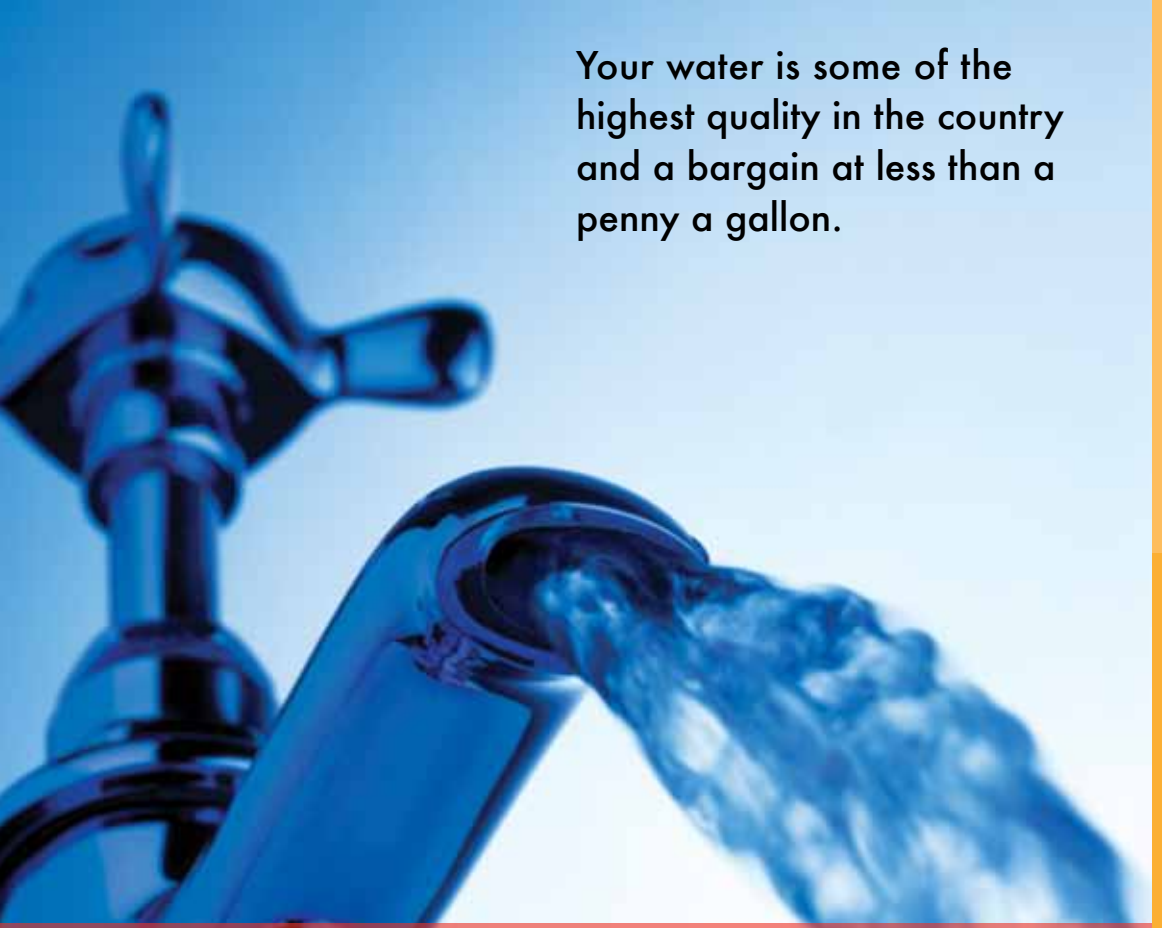
Seattle Public Utilities

DRINKING WATER QUALITY REPORT 2013

INVISIBLE SYSTEMS, VISIBLE BENEFITS

Beacon Hill Reservoir lies beneath Jefferson Park — creating more open space for Seattle.



Your water is some of the highest quality in the country and a bargain at less than a penny a gallon.

1.3 MILLION PEOPLE USE SPU WATER EVERY DAY

PIPES, PUMPS, TREATMENT PLANTS, AND PEOPLE MAKE THIS POSSIBLE

Tony Blackwell
Division Director for Water Transmission and Distribution

"I like the fact that SPU owns and maintains both of its watersheds. It makes me proud that we have control of the quality of our water from our watersheds to your faucet."

OUR HIDDEN WATER SYSTEM

Infrastructure. It may sound boring, but take a deeper look. You'll find the amazing role Seattle Public Utilities' pipes, pumps and treatment plants play to bring some of the best water in the world to your tap.

- It starts with the watersheds—over 100,000 protected acres—that provide some of the cleanest water. We're the envy of the nation, with such a safe and reliable source of mountain water. These watersheds also provide habitat for our salmon and other animals and plants.
- Water travels to two plants that treat and test the water to ensure it is safe. Because of the purity of the source water, we do much less treatment than other cities.
- It travels through 1,800 miles of water mains. We schedule regular preventative maintenance to prevent leaks and breaks.
- It is monitored 24 hours a day, seven days a week, by people responding to breaks, power outages, pumping station issues and coordinating with street and electricity construction projects.
- It is stored in covered reservoirs in the city, protected from contamination.
- It's there—tasty, clean and safe—when you turn on the tap.

It takes 658 people, and lots of equipment, to bring you what you have come to expect: the best water in the nation, for less than a penny a gallon.

1,800 MILES OF PIPES, 20,000 VALVES, 188,000 WATER METERS

THE COMPLEX BUSINESS OF GETTING CLEAN WATER TO YOUR HOME

Seattle Public Utilities' two watersheds, two state-of-the-art water treatment plants, 1,800 miles of pipes, thirteen reservoirs, ten storage tanks, many pumping stations, and a mission control center all work together to supply our region with fresh, clean water.

Cheryl Capron
Senior Water Systems Operator

"I monitor the system, analyze operations data, reroute water if there's a main break. If a transportation project is planned, I figure out what needs to be shut down, and find alternative supply routes so no one goes without water. I make sure water flows!"

A WORLD OF WATER BELOW

The water beneath our feet is necessary for life, yet few of us think about the amazing system that delivers it to our taps.

Water treatment alone is a complex endeavor: Cedar River water is disinfected with ozone, ultraviolet light, and chlorine. South Fork Tolt water, which is slightly different, is ozonated, filtered, and disinfected with chlorine. Both supplies have minerals added for corrosion control. Then, our water is ready to drink.

PREVENTING WATER WASTE

Seattle Public Utilities (SPU) produced 44.1 billion gallons of treated drinking water in 2013. Of this amount, 2.8 billion gallons were lost to leakage; representing a leakage rate of 6.3 percent, which is considered relatively low.

Preventing leaks is one way water is conserved; your efforts are another. Why is conservation so important in our region? It gives customers ways to lower their utility bills. It helps make the water system more reliable by reducing waste and leaving water available for when it's needed most. And, conserving water means that we'll have enough water for ourselves, wildlife, and future generations.

The Saving Water Partnership (SWP) — which is made up of SPU and 18 of its wholesale water utility partners—has set a six-year conservation goal: reduce per capita use from current levels so that the SWP's total average annual retail water use is less than 105 mgd (million gallons per day) from 2013 through 2018 despite forecasted population growth. In order to meet the goal, the amount of water used per person will need to decrease to offset growth. For 2013, the Saving Water Partnership met the goal, using 93 mgd.

Visit **www.savingwater.org** for information on rebates, conservation tips, videos on fixing leaks and efficient landscaping practices, and more.

We get ongoing benefit from Seattle's early decision in the 1890s to protect the watershed and provide a gravity-fed clean mountain source of water for our region.

MORE THAN 100,000 ACRES OF PROTECTED WATERSHED

A KEY PART OF THE INVISIBLE SYSTEM

Ralph Naess
Public and Cultural Programs Manager

"It's a huge 'aha!' moment when people come up to our Cedar River Watershed Education Center. They see the mountains, and the lake and streams and waterfalls and ask in amazement, 'Is that my drinking water?' It's a beautiful thing: water with spirit."

THE WATERSHED AND ITS WATER: TWO GREAT RESOURCES

Two surface water sources provide our water: 60 percent from the Cedar River and 40 percent from the South Fork Tolt River. These two surface water sources begin in the Cascade Mountains. (The system also has wells that weren't needed in 2013.)

Since both watersheds are publicly owned, Seattle Public Utilities makes sure that the land and water is free of agricultural, industrial, residential and recreational use. This means that contaminants have little opportunity to enter the water, making our water some of the best in the nation, and requiring less treatment than most other cities.

More than forty people, including biologists and hydrologists, education staff, watershed inspectors, and maintenance people work to protect the watersheds. Watershed maintenance includes decommissioning roads to reduce run-off, improving culvert systems, and taking care of the forest, plants, fish and wildlife.

COME SEE THE WATERSHED

While the watershed is closed to public access, the Cedar River Watershed Education Center on Rattlesnake Lake in North Bend provides guided tours, exhibits and events to connect people to the source of Seattle's drinking water and its unique cultural and natural history. School field trips, educational events, volunteer opportunities and family programs bring the history, science and culture of the watershed alive. Come visit! Learn more at **www.seattle.gov/util/crwec**.

THE DETAILS ABOUT OUR WATER SOURCES AND THEIR POTENTIAL CONTAMINANTS

To ensure tap water is safe to drink, the Environmental Protection Agency and the Washington State Board of Health regulate the amount of certain contaminants in water provided by public water systems. The U.S. Food and Drug Administration and the Washington State Department of Agriculture regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Washington's Source Water Assessment Program is conducted by the Department of Health (DOH) Office of Drinking Water. According to DOH, all surface waters 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. Information on the source water assessments is available from the DOH website at **https://fortress.wa.gov/doh/eh/dw/swap/maps**.

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.

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 at **800-426-4791**.

In Seattle's surface water supplies, the potential sources of contamination include:

- microbial contaminants, such as viruses, bacteria, and protozoa from wildlife;
- inorganic contaminants, such as salts and metals, which are naturally occurring; and
- organic contaminants, which result from chlorine combining with the naturally occurring organic matter.

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 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 at **800-426-4791**.

Winsome Robinson Williams
Water Quality Analyst, Supervisor

"The best part of my job is letting people know that our water is amazing."

Ryane Mar, *an engineer for water-related Improvement Projects, with* **Daniel Huang**, *an engineer with the Dam Safety Program.*

A lot of work goes into maintaining the region's water supply. There are multiple types and ages of water mains, Seattle's geography is challenging with lakes and hills, and the number of federal and state regulations that SPU has to meet is substantial.

Alex Chen
Senior Water Quality Engineer

"I see myself as an advocate for our customers. Together with other water quality engineers, I ensure that our water protects public health, meets requirements, and tastes and smells great."

OUR RESULTS:

The results of monitoring in 2013 are shown in the table below. These results are for parameters regulated by the federal and state agencies. For other water quality information, please check our web site at **www.seattle.gov/util/waterqualityreport** or call **206-615-0827**. We can also send you a list of the more than 200 compounds for which we tested but did not find in our surface water supplies, including unregulated contaminants.

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. Areas north of Green Lake usually receive Tolt water. Each source can provide water to other areas in Seattle if needed.

		EPA'S ALLOWABLE LIMITS		LEVELS IN CEDAR WATER		LEVELS IN TOLT WATER		
DETECTED COMPOUNDS	UNITS	MCLG	MCL	AVERAGE	RANGE	AVERAGE	RANGE	TYPICAL SOURCES
RAW WATER								
Total Organic Carbon	ppm	NA	TT	0.8	0.4 to 1.4	1.3	1.2 to 1.4	Naturally present in the environment
Cryptosporidium*	#/100L	NA	NA	ND	ND	<1	ND - 2	Naturally present in the environment
FINISHED WATER								
Turbidity (cloudiness)	NTU	NA	TT	0.4	0.2 to 2.7	0.06	0.04 to 0.14	Soil runoff
Barium	ppb	2000	2000	1.8	one sample	1.9	one sample	Erosion of natural deposits
Bromate	ppb	0	10	0.08	ND - 2	ND	ND	By-product of drinking water disinfection
Fluoride	ppm	4	4	0.8	0.7 to 0.8	0.8	0.7 to 0.9	Water additive that promotes strong teeth
Coliform, Total	%	0	5	Highest Month=0.5% Annual Average=0.15%		Highest Month=0.5% Annual Average=0.15%		Naturally present in the environment
Total Trihalomethanes	ppb	NA	80	34	14 to 44	29	19 to 41	By-products of drinking water chlorination
Haloacetic Acids(5)	ppb	NA	60	41	12 to 65	37	23 to 48	
Chlorine	ppm	MRDLG = 4	MRDL = 4	Average = 0.85 Range = 0 to 1.7		Average = 0.85 Range = 0 to 1.7		Water additive used to control microbes

*Cryptosporidium was not detected in any samples from the Cedar (out of 3) and in one sample from the Tolt (out of 4).

LEAD AND COPPER MONITORING RESULTS					
PARAMETER AND UNITS	MCLG	ACTION LEVEL+	2013 RESULTS++	HOMES EXCEEDING ACTION LEVEL	SOURCE
Lead, ppb	0	15	3	0 of 50	Corrosion of household plumbing systems
Copper, ppm	1.3	1.3	0.10	0 of 50	

\+ The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
++ 90th Percentile: i.e. 90 percent of the samples were less than the values shown.

Although there is no detectable lead in our source water, tests show there are sometimes elevated levels of lead and copper in some samples, primarily because of corrosion of household plumbing systems. These results show that it is very important that homeowners, business owners and others be aware of their type of plumbing, and how the plumbing affects their drinking water quality.

The majority of homes have some risk of lead contamination in water that sits in pipes for longer than two hours. Where you live, when your plumbing was installed and what type of plumbing you have, all play a part in determining your potential exposure level. SPU treats the water to minimize the tendency for lead to enter the water, and results show that that we have been very successful at this.

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. SPU 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 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 **http://www.epa.gov/safewater/lead**.

Finally, remember that drinking water is only a minor contributor to overall exposure to lead. Other sources, including paint, soil, and food, also contribute.

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 MCLGs as feasible using the best available treatment technology.

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.

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

NTU: *Nephelometric Turbidity Unit*—Turbidity is a measure of how clear the water looks. The turbidity MCL that applied to the Cedar supply in 2013 was 5 NTU, and for the Tolt it was 0.3 NTU for at least 95 percent of the samples in a month. 100 percent of the samples from the Tolt in 2013 were below 0.3 NTU.

NA: *Not Applicable*

ND: *Not Detected*

ppm: *1 part per million* = 1 mg/L = 1 milligram per liter

ppb: *1 part per billion* = 1 ug/L = 1 microgram per liter

1 ppm =1000 ppb

For more information about your water, contact Seattle Public Utilities at **206-684-3000** or visit our website at **www.seattle.gov/util/waterqualityreport**.
For conservation information, visit **www.savingwater.org**.

Seattle Public Utilities

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SEATTLE, WA
PERMIT NO. 6000

Seattle water is clean, safe, and costs less than a penny a gallon.
For translation services please call 206-684-3000.

El agua de Seattle es limpia, segura y cuesta menos de un centavo el galón.
Para servicios de interpretación por favor llame al 206-684-3000.

Ang tubig sa Seattle ay malinis, ligtas, at naghahalaga ng wala pang isang sentimos ang bawat galon.
Para sa serbisyo ng tagapagpaliwanag, tumawag sa 206-684-3000.

Nguồn nước của Seattle sạch, an toàn và có giá chưa tới một xu một gallon.
Về dịch vụ phiên dịch xin gọi 206-684-3000.

씨애틀의 수돗물은 깨끗하고 안전하며 또한 저렴합니다.
통역 서비스를 원하시면 **206-684-3000**으로 전화하세요.

西雅圖的水乾淨、安全，每加侖成本不到一分錢。
如需要口譯服務，請撥電話號碼206-684-3000

Biyaha Seattle waa nadiif, waa amaan, qiimahana waa ka jaban yahay hal senti halkii galan.
Wixii turjubaan afka ah ku saabsan, Fadlan la soo xariir taleefoonka: 206-684-3000.

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