

# QUALITY WATER

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FROM **FOREST** TO **FAUCET**



Seattle  
Public  
Utilities

2016 **DRINKING WATER** QUALITY REPORT

# A LETTER FROM THE GENERAL MANAGER

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Water is an essential resource—it enables each of us, our city, and the environment around us to grow and thrive.

At Seattle Public Utilities (SPU), we believe that the quality of the water we provide is an expression of our care for the communities we serve. We believe that every community should be able to depend on the safety, quality, and affordability of the water they use every day. That is why I am so proud to share this water quality report with you.

As a relatively new resident of Seattle, I am deeply appreciative of the region's drinking water. I moved here from an east coast city, which like many cities across the country draws its water from local rivers—the same rivers that are used for recreation, industry and commerce. That river water requires significant processing and treatment with a long list of chemicals before it is considered safe and drinkable.

Seattle's water is different. Our water comes from protected mountain watersheds that are carefully managed to supply every resident and business in our city and surrounding areas with some of the best water in the nation, at less than a penny per gallon.

SPU employees—scientists, engineers, repair crews, educators and more—work diligently to safeguard our pristine watersheds, maintain a reliable delivery system, manage water levels, and monitor water quality 24 hours a day, 365 days a year to ensure safety and taste. We do this to guarantee that everyone we serve will enjoy a clean and safe water supply for years to come.

This annual report is required by the U.S. Environmental Protection Agency (EPA). More importantly, we produce this report because it is important for our customers to know about the quality of their drinking water. I hope the information in this report answers questions you may have regarding your drinking water and helps you feel more connected to this valuable resource that we all share.

To learn more or tell us what you think about our services, please visit us online at [www.seattle.gov/util](http://www.seattle.gov/util).

A handwritten signature in black ink that reads "Mami Hara".

Mami Hara  
General Manager

## ESSENTIAL DIFFERENCE

Seattle's drinking water comes from one of only a few pristine, protected mountain watersheds in the country. Every day, SPU provides about 120 million gallons of drinking water to 1.4 million people in the greater Seattle area.



## IS MY WATER SAFE?

Yes—Seattle's drinking water surpasses all federal and state drinking water standards.

Clean, fresh drinking water is essential to life. We rely on it to keep us healthy, and we enjoy it as it sustains, refreshes and replenishes us.

It's SPU's job to make sure your water is clean, safe and delicious. SPU monitors water quality 365 days per year, testing more than 20,000 samples each year. Tests are conducted from all parts of the regional water system.

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. We carefully manage and monitor our water to protect you from these potential sources of contamination.



### SPU TASTE-TESTERS

Twice a month, six SPU employees (the Flavor Profile Panel) taste up to 12 samples and systematically evaluate the flavor and odor of drinking water.

# ESSENTIAL TO YOU



## WHO SHOULD READ THIS REPORT?

SPU wants all its customers to know where their water comes from, the steps SPU takes to ensure the safety of drinking water, and the results of its testing. It's important to know that some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised people such as people with cancer undergoing chemotherapy, people 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).



### WATER WISDOM

#### DID YOU KNOW?

Bottled water is not as heavily regulated as tap water and can be up to 1,000 times more expensive.



# FOREST TO FAUCET

About 35 miles east of Seattle, rain and snowmelt from the Cascades continually replenish the Cedar and South Fork Tolt Rivers. Two surface water sources provide the majority of water for our drinking water system. In 2016, about 65% was provided by the Cedar River and 35% came from the South Fork Tolt River. The system also has access to wells located in Burien that are used to meet peak summer demand when necessary. They were not used in 2016.

Our two protected watersheds total more than 100,000 acres and are owned or controlled by the City of Seattle and the U.S. Forest Service.

SPU's comprehensive watershed protection program prohibits agricultural, industrial, and recreational activities in the watersheds, and no one is allowed to live there. This means there is little opportunity for contaminants to enter the water.

Washington's Source Water Assessment Program is conducted by the Department of Health (DOH) Office of Drinking Water. 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. Information on the source water assessments is available from the DOH website at [fortress.wa.gov/doh/eh/dw/swap/maps/](http://fortress.wa.gov/doh/eh/dw/swap/maps/).

## TOLT RIVER WATERSHED

12,500 Acres

Located in the foothills of the Cascade Mountains, the Tolt River Watershed supplies about 35% of Seattle's drinking water.



## CEDAR RIVER WATERSHED

90,638 Acres

The Cedar River Watershed is located 35 miles east of Seattle and provides about 65% of Seattle's drinking water.



Seattle is fortunate to capture its water as snowmelt and rain, high in the mountains. From there, this pure and protected source water travels to two treatment facilities where it is tested and treated to ensure safety, then continues its journey through 1,900 miles of pipeline to your faucet.



# ESSENTIAL TO THE CITY

## WHY SHOULD WE CONSERVE WATER?

Saving water benefits people, salmon and local wildlife and leaves water available for when it's needed most. Preventing leaks and conserving water are key to these efforts.

Water suppliers in the state of Washington are required to track the amount of water being leaked through their water distribution infrastructure. Leakage happens in every water system, and can be due to things like aging infrastructure or water main breaks.

In 2016, SPU produced 44.6 billion gallons of treated drinking water. Of this, 2.4 billion gallons (5.3 percent) was lost to leakage. This 5.3 percent leakage rate is well below the state standard of 10 percent. SPU is working to keep leakage to a minimum, and prevent future water system leaks, by expanding maintenance programs and investing in infrastructure repairs.

## WHAT CAN I DO?

You can join SPU in efforts to conserve water. There are easy, everyday things you can do to use water wisely (and save money). Here are a few, can you think of more?

- Turn off the water as you brush your teeth
- Wait to do laundry until you have a full washer
- Take shorter showers
- Fix dripping faucets and leaky toilets
- Water your lawn, not the sidewalk

Visit [www.savingwater.org](http://www.savingwater.org) for information on rebates, conservation tips, how-to videos and more.

## AVERAGE TOTAL HOME WATER USE

**SEATTLE** 54 Gallons Per Person Per Day

**NATIONAL AVERAGE** 100 Gallons Per Person Per Day



## HOW DOES WATER CONSERVATION HELP FISH AND WILDLIFE?

Healthy habitat for salmon, trout and many other species depends on the quantity and quality of water in the streams that support them. The same reservoirs that supply our drinking water also provide vital water to the Cedar and Tolt rivers—important fish habitat. The steps our customers take to conserve water will help support freshwater habitat for generations to come.

## WHAT'S OUR CONSERVATION GOAL?

To encourage more efficient water use, the Saving Water Partnership—SPU and its 18 water utility partners—set a six-year conservation goal: reduce per capita use from current levels so that the partnership's total average annual retail water use is less than 105 million gallons per day from 2013 through 2018 despite forecasted population growth. In 2016, our customers met this goal, using only 94.4 million gallons per day.

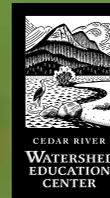
## TELL US WHAT YOU THINK!

Take our water conservation survey at [www.savingwater.org](http://www.savingwater.org) and enter to win a free home energy and water conservation kit.



### WATER WISDOM

Use water wisely, especially in the summer and fall months, when our weather is dry and stream flows are low.



### WATERSHED TOURS

The Cedar River Watershed Education Center is only 35 miles east of Seattle, at beautiful Rattlesnake Lake. The Center is open April through October, Tuesday through Sunday from 10 to 5. The Center is free to the public.

Tours are available July - September.  
(\$10 adults; \$5 youth & seniors ages 55 and older.)

# \$5 OFF

EACH TICKET

#### CEDAR RIVER WATERSHED EDUCATION TOUR

Register and redeem at:

[www.seattle.gov/util/cedarriverwatershed](http://www.seattle.gov/util/cedarriverwatershed)

Click on "Programs and Tours" PROMO CODE: WATER

Valid July-September 2017.

# ESSENTIAL TO NATURE



## WHY IS IT IMPORTANT TO TEST THE WATER SUPPLY?

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.

In order to ensure that tap water is safe to drink, the Environmental Protection Agency and/or the Washington State Board of Health prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration and/or the Washington State Department of Agriculture regulations establish limits for contaminants in bottled water that 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 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 (800-426-4791).

## SEATTLE'S DRINKING WATER SOURCES DON'T CONTAIN LEAD.

Drinking water quality is tested regularly to ensure it meets or exceeds state and federal standards.

### LEAD & COPPER MONITORING RESULTS

Parameter & Units	MCLG	Action Level+	2016* Results	Homes Exceeding Action Level	Source
Lead, ppb	0	15	3	2 of 50	Corrosion of household plumbing systems
Copper, ppm	1.3	1.3	.10	0 of 50	

\* 90th Percentile: i.e. 90 percent of the samples were less than the values shown.

+ The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

## WHAT ABOUT LEAD?

SPU has no detectable lead in our source water. It is possible to find detectable levels of lead in some home tap samples, usually from corrosion of lead alloys in a home's plumbing. However, SPU works hard to make the water in our system less corrosive to lead plumbing, including continuously monitoring water chemistry to ensure it maintains the appropriate ph-level. To learn more about water quality and lead, visit [www.seattle.gov/util/lead](http://www.seattle.gov/util/lead).

Elevated levels of lead and copper may be found 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.

## WHO IS AT RISK?

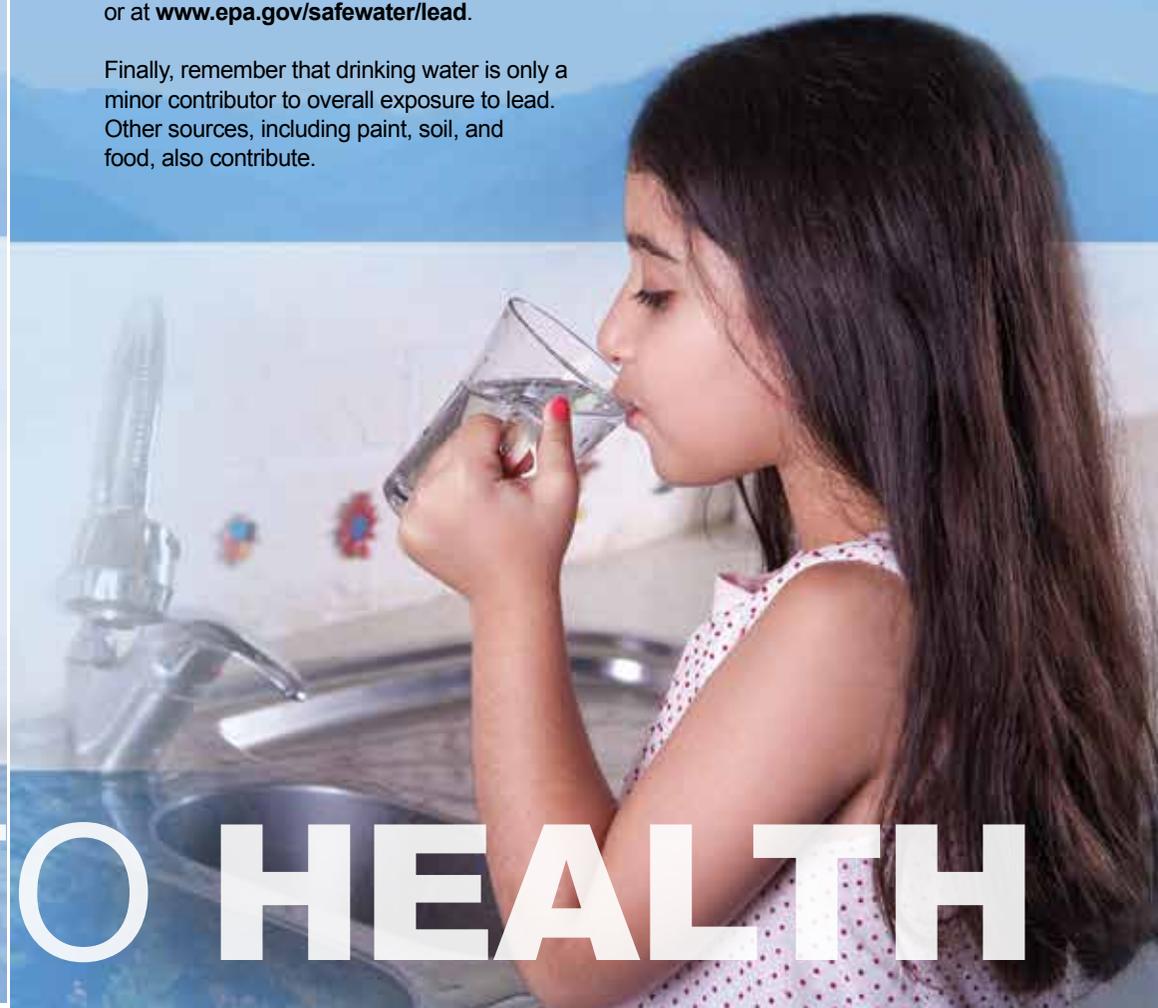
Where you live, when your plumbing was installed and what type of plumbing you have, all play a part in determining your potential exposure level.

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.

## WHAT CAN I DO?

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 (800-426-4791) or at [www.epa.gov/safewater/lead](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.



# ESSENTIAL TO HEALTH

## HOW TO READ THESE RESULTS

The table below shows water monitoring results for parameters regulated by the federal and state agencies. 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. We have used many acronyms so information fits in the table.

Definitions are provided at the bottom of the page. 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.

**For other water quality information, visit us online at [www.seattle.gov/util/waterquality](http://www.seattle.gov/util/waterquality) or call 206-615-0827.**

## WATER MONITORING RESULTS FOR 2016

DETECTED COMPOUNDS	UNITS	EPA's Allowable Limits		Levels in Cedar Water		Levels in Tolt Water		TYPICAL SOURCES	Success!
		MCLG	MCL	AVERAGE	RANGE	AVERAGE	RANGE		
Raw Water									
Total Organic Carbon	ppm	NA	TT	0.8	0.3 to 2.1	1.4	1.2 to 1.7	Naturally present in the environment	✓
Cryptosporidium*	#/100L	NA	NA	0.3	ND to 2	ND	ND	Naturally present in the environment	✓
<b>FINISHED WATER</b>									
Turbidity	NTU	NA	TT	0.3	0.2 to 2.3	0.07	0.01 to 0.2	Soil runoff	✓
Arsenic	ppb	0	10	0.5	0.4 to 0.6	0.5	0.4 to 0.6	Erosion of natural deposits	✓
Barium	ppb	2000	2000	1.6	1.5 to 1.8	1.3	1.0 to 1.6	Erosion of natural deposits	✓
Bromate^	ppb	0	10	ND	ND	0.1	ND-1	By-product of drinking water disinfection	✓
Chromium	ppb	100	100	0.27	0.25 to 0.33	0.2	ND to 0.24	Erosion of natural deposits	✓
Fluoride	ppm	4	4	0.7	0.6 to 0.9	0.7	0.6 to 0.9	Water additive, which promotes strong teeth	✓
Nitrate	ppm	10	10	0.02	(one sample)	0.09	(one sample)	Erosion of natural deposits	✓
Coliform, Total	%	0	5%	Highest Month = 0.4%		Annual Average = 0.06%		Naturally present in the environment	✓
Total Trihalomethanes	ppb	NA	80	37	20 to 49	60	19 to 46	By-products of drinking water chlorination	✓
Haloacetic Acids(5)	ppb	NA	60	37	17 to 54	45	23 to 48		
Chlorine	ppm	MRDLG =4	MRDL = 4	Average = 0.98		Range = 0 to 1.6		Water additive used to control microbes	✓

\*Cryptosporidium was not detected in any samples from the Tolt supply (12 samples). It was detected in 2 of 12 samples from the Cedar supply.

^ We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards.

During June 2016, we did not collect the sample for bromate for the Tolt supply, and therefore cannot be sure of the quality of your drinking water during that time. However, based on historical data, most bromate results for the Tolt supply are non-detect.

### 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 2016 was 5 NTU, and for the Tolt it was 0.3 NTU for at least 95% of the samples in a month. 100% of the Tolt samples for 2016 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**

# ESSENTIAL TO QUALITY

# HIGH QUALITY, SAFE, CLEAN WATER IS ESSENTIAL TO THE QUALITY OF LIFE IN SEATTLE.



I'm proud that the City of Seattle has some of the cleanest, most natural water in the world. We are fortunate to have access to pristine water sources, and vigilant about protecting our water, even in the face of challenges like climate change. We are also unyielding in our commitment to making sure all residents have access to this essential resource, now and in the future, no matter where they come from, what language they speak or how much money they make.

Mayor Ed Murray  
City of Seattle

*"I love that I can get safe and great-tasting drinking water whenever I need it, just by turning on the faucet."*

*"Me da gusto saber que con solo abrir el grifo, puedo tener agua limpia y con buen sabor."*

Ruben Chi Bertoni  
SPU Customer

*"From our live fish tanks to our kitchens, Uwajimaya depends on the quality and consistent availability of Seattle water – it's pure and refreshing!"*

Denise Moriguchi  
President & CEO  
Uwajimaya

**MOUNTAIN-FRESH TAP WATER:** HIGH QUALITY, LESS THAN 1¢ PER GALLON.

來自山中的自來水：高質量，每加侖不到1¢。

來自山中的自來水：高品質，每加侖不到1¢。

마운틴 프레쉬 상수도: 고품질, 갤런당 1¢보다 적음.

Biyo tuubad buurta ah-oo macaan: tayo aad u saraysa, oona ah lacag ka yar 1¢ halkii jirgaan ama caag.

Mula sa bundok na tubig: mataas na kalidad, mas mura sa 1¢ kada galon.

Nước máy sạch mountain-fresh: chất lượng cao, chưa đến 1¢ một ga-lông.

Agua potable fresco de Montaña de alta calidad, menos de un centavo por galón.

## TAP VS. BOTTLED WATER COST

# 1 MONTH



At around a **penny per gallon from the tap**, the cost of drinking the doctor-recommended 8 glasses of water daily for one month is just 15¢. The same amount of **bottled water can cost up to \$116 per month.**



# ESSENTIAL TO ALL



**Seattle  
Public  
Utilities**

**Seattle Public Utilities**  
700 Fifth Avenue, Suite 4900  
P.O. Box 34018  
Seattle, WA 98124-4018

PRESORTED  
STANDARD  
US POSTAGE PAID  
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 limpio, seguro, y cuesta menos de un penny por un galón.  
Para servicios de traducción favor llamar al 206-684-3000.

Nước Seattle sạch, an toàn, và có chi phí chưa đến một xu một ga-lông.  
Để nhận các dịch vụ dịch thuật, vui lòng gọi số 206-684-3000.

西雅图的水纯净、安全，每加仑的价格不到1美分。  
如需翻译服务，请拨打206-684-3000。

西雅圖的水純淨、安全，每加侖的價格不到1美分。  
如需翻譯服務，請撥打 206-684-3000。

Biyaha Seattle waa kuwo nadiif ah, ammaan ah, oona qiimahoodu yahay wax ka yar shillin halkii jirgaan ama caag. Si aad u heshid adeego turjubaan fadlan wax 206-684-3000.

Ang tubig sa Seattle ay malinis, ligtas, at mas mura sa isang penny kada galon.  
Para sa mga serbisyo ng pagsasalit-wika, mangyari lang tumawag sa 206-684-3000.

시애틀 물은 깨끗하고 안전하며 1갤런당 1페니보다 작은 가격을 갖고 있습니다.  
번역 서비스를 원하시면 206-684-3000로 전화 연락하시기 바랍니다.

You're receiving this report as part of a federal requirement for municipal water systems. This report costs about 32 cents to produce and mail to you.  
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**PLAN A TRIP TO YOUR WATERSHED  
& LEARN MORE ABOUT YOUR WATER SUPPLY**

