



INSTALLATION OF CEDAR RIVER
PIPELINE, CIRCA 1910

A historical black and white photograph showing a construction site for a pipeline. A man in a dark suit and hat stands on a large pile of earth. In the foreground, a deep trench is lined with wooden shoring, and a large pipe is visible within it. A tall wooden utility pole stands in the center. In the background, there are buildings and signs, including one that says 'THE STOCKTON NEW MEX.' and another that says 'W.P.A. FOLGER & CO'S'.

**MORE THAN 100 YEARS OF
WATER STEWARDSHIP**

Seattle 2012 Drinking Water Quality Report



New underground Beacon Hill Reservoir during construction.

For over 100 years, we've benefited from wise water planning.

PURE WATER FROM FIRE AND GOLD

The great Seattle fire of 1889 burned more than 100 acres of downtown, a failure of the city's patchwork of private water systems. One month later, the citizens of Seattle overwhelmingly voted for a publicly owned system. Then, the Alaska gold rush of 1897 brought money into the city so that it could afford to build it. Here's what our visionary leaders did so we could have some of the best water in the country today:

- Chose a high-altitude source, which means gravity, instead of an expensive pumping system, brings us water.

- Chose water that comes from a protected wilderness, which means it has fewer contaminants and we can treat our water with fewer chemicals.

Our region benefits from these decisions made a century ago, with clean, abundant water. Seattle Public Utilities is committed to continuing this legacy.

A HEALTHY WATER SYSTEM

Here's what we're doing to ensure both water quality and quantity, today and tomorrow:

- Covering our reservoirs to improve drinking water quality and security, and provide public open space. This \$145 million capital improvement program constructed five new underground reservoirs, which have been completed and are now back in service.
- Removing roads in the watershed and improving the health of the forest so there is less runoff, making the water clearer and requiring less treatment.
- Planning for climate change threats to our water, such as a decrease in snowfall.

- Continuing to encourage more efficient water use. Since 1990, the population served by Seattle Public Utilities has grown by 17 percent while total water consumption has declined by 29 percent. We are using 39 percent less water per person than we did in 1990.

This Drinking Water Quality report, which the Environmental Protection Agency requires us to create and share with every customer, gives you information about how we're doing regarding the water you drink every day. We're pleased to report that our water is among the best in the nation, both in purity and taste.



Landsburg Diversion Dam, first built in 1901.



Tolt water treatment facility.

What makes for water quality? It's in the infrastructure.

INVISIBLE YET INVALUABLE

Hidden from sight underground, and up in the mountains, are many parts of the water system that help make your water some of the best. Water quality is measured three ways: how good it tastes, how it smells, and how pure it is. We boast great quality in every measure, thanks to a water infrastructure that protects all three.

1 We have a great resource in the watershed that we protect and manage. We keep your watershed closed to human activity, allowing no development, and restoring and protecting habitat – our tree trimmers even use food grade oil in their chainsaws!

2 We provide the right level of treatment to keep it clean. Not too much chlorine, not too little. Pre-treating with ozone and ultraviolet light to improve taste and smell.

3 We store it in covered reservoirs and flush our 1,600 miles of water pipes as necessary.

4 We replace leaking pipes on a regular basis.

5 We test the water every day for contaminants. Then our specially trained tasting panel makes sure it meets their exacting standards.

CLEAN AND BOUNTIFUL AND INEXPENSIVE

While many cities scramble to find additional water sources, or fight with industry and agriculture over the supply, the Seattle region fares much better. Today, due to our two large mountain watersheds and our conservation efforts, we have water to meet our growth needs for the next 50 years.

It's also a great value. Compared with bottled water, which isn't subject to the same stringent quality standards, our water is 800 times less expensive. And the average Seattle Public Utilities customer's monthly water bill is comparable to average bills in other cities of similar size. High quality drinking water at a reasonable price is our promise to customers.

RELIABLE DELIVERY TO YOUR TAP

Seattle's more than 1,600 miles of distribution water mains are aging. Some drinking water pipes were installed in the ground nearly 100 years ago and have reached the end of their service life. Other water pipes are located in corrosive soils and must be replaced.

Through its water main rehabilitation program, Seattle Public Utilities is upgrading 4,600 linear feet of pipe with a non-metallic product that performs well in corrosive soils. Construction of this new piping system will begin in 2014 at five different sites in southeast Seattle.

SAVING WATER IS NOW SECOND NATURE

The communities served by Seattle Public Utilities and its 18 water district partners are enthusiastic about conserving, knowing that our quality of life is higher and our bills are lower when we use less. Because of water-efficient fixtures, new practices in landscaping, and business and residential conservation efforts, we've been able to reduce per-person water consumption by 14 percent in the past six years, from 92.2 to just 83.6 gallons per day.

In 2012 alone, we saved an estimated 780,000 gallons per day. That's enough water to supply 5,237 single-family homes. In the past six years, we have conserved an estimated 5.4 million gallons per day toward our 2012 goal of nearly 6 million gallons per day.

Over the last 20 years, Seattle Public Utilities has also reduced the amount of water it uses in operating the system. Out of the 44.1 billion gallons of treated drinking water produced in 2012, 3.0 billion gallons, or 6.8 percent, were lost to system leaks, meter inaccuracy, and non-metered uses. This loss rate is considered relatively low.

For the future, we've set a six-year conservation goal that's going to continue reducing per-person water use. Help us meet that goal, and save on your water bill at the same time, by continuing to find ways to use less.

Visit www.savingwater.org for more information on rebates, fix leaks videos, tips and free gardening classes.

WHAT DO CONSERVATION AND FISH HAVE TO DO WITH EACH OTHER?

Water conservation helps salmon, as well as your pocketbook. The foundation for

healthy salmon populations is healthy habitat – including the quantity and quality of water in the waterways that support them. Your actions to conserve keep water in our rivers and protect this precious habitat for salmon and other species.



Help available for your utility bill

For people who need help with their water bills, Seattle Public Utilities offers assistance through its Utility Discount Program and conservation rebates.

For help with your water bill, call **206-684-0268** or go to www.seattle.gov/mybill. To see if you are eligible for a free water-efficient toilet, call **206-448-5751** or go to www.seattle.gov/util and search "low income toilet."

Conservation: saving money, helping people and fish.



WATER ENOUGH FOR FISH, PEOPLE, AND OTHER LIVING THINGS

Your water conservation efforts help ensure that salmon and other wildlife have a healthy habitat.

Fish passage ladder.



Masonry Pool in the Cedar River Watershed.

More information about your water.

THE DETAILS ABOUT OUR WATER SOURCES AND THEIR POTENTIAL CONTAMINANTS

Our region's water comes from two major sources: the Cedar River (60 percent) and the South Fork Tolt River (40 percent). These surface water sources begin in the Cascade Mountains and have very large protected watersheds. The system also uses wells, located in Burien, to meet peak summer demand. The wells provided less than 0.2 percent of the supply in 2012.

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.

To ensure tap water is safe to drink, the Environmental Protection Agency and the Washington State Board of Health prescribe regulations

that limit the amount of certain contaminants in water provided by public water systems.

All drinking water, including bottled water, contains at least small amounts of some contaminants, the presence of which does not necessarily indicate 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**.

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. 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://for-tress.wa.gov/doh/eh/dw/swap/maps>.

Since both watersheds are publicly owned, Seattle Public Utilities is able to prohibit agricultural, industrial, and recreational activities in the watersheds. Even so, there is always some potential for natural sources of contamination. 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. 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 at **800-426-4791**.

Our results:

The results of monitoring in 2012 are shown in the table below. These results are for parameters regulated by the federal and state agencies. We tested for some 211 contaminants and didn't find any traces of 201 of those. For other water quality information, please check our web

site at www.seattle.gov/util/waterquality or call **206-615-0827**. To make all the information fit in one table, we used many acronyms that are defined below. 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.

		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	0.7	0.4 to 1.1	1.2	1.1 to 1.4	Naturally present in the environment
Cryptosporidium*	#/100L	NA	NA	ND	ND	ND	ND	Naturally present in the environment
FINISHED WATER (after treatment)								
Turbidity (cloudiness)	NTU	NA	TT	0.3	0.2 to 2.3	0.06	0.04 to 0.38	Soil runoff
Barium	ppb	2000	2000	1.8	one sample	1.9	one sample	Erosion of natural deposits
Cadmium	ppb	5	5	ND	one sample	0.35	one sample	Erosion of natural deposits
Fluoride	ppm	4	4	0.8	0.7 to 0.9	0.8	0.7 to 0.9	Water additive, which promotes strong teeth
Nitrate	ppm	10	10	0.02	one sample	0.13	one sample	Erosion of natural deposits
Total Trihalomethanes	ppb	NA	80	38	16 to 56	40	19 to 57	By-products of drinking water chlorination
Haloacetic Acids(5)	ppb	NA	60	44	12 to 72	38	22 to 55	
Chlorine	ppm	MRDLG = 4	MRDL = 4	Average = 0.89		Range = 0 to 1.7		Water additive used to control microbes
Coliform, Total	%	0	5%	Highest Month = 0.9%				Naturally present in the environment

*Cryptosporidium was not detected in any samples from the Cedar or Tolt (3 samples each supply).

LEAD AND COPPER MONITORING RESULTS

PARAMETER AND UNITS	MCLG	ACTION LEVEL+	2010 RESULTS++	HOMES EXCEEDING ACTION LEVEL	SOURCE
Lead, ppb	0	15	5	0 of 50	Corrosion of household plumbing systems
Copper, ppm	1.3	1.3	0.14	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, 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.

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. Seattle Public Utilities is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components.

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 we have been very successful at this. 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.

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 2011 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 2011 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 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 nanghalaga ng wala pang isang sentimo ang bawat galon.
Para sa serbisyo ng tagapagpaliwanag, tumawag sa 206-684-3000.

Nguôn nước của Seattle sạch, an toàn và có giá chưa tới một xu một gallon.
Vui dich vyi phien dich xin gọi 206-684-3000.

Seattle의 수도물은 깨끗하고 안전하며 또한 저렴합니다.
물역 서비스를 원하시면 206-684-3000으로 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

Biyatha Seattle waa nadiif, waa amaan, qiimahana waa ka jaban yahay hal senti halkii galan.
Wixii turjubaanafka an ku saabsan, Fadlan la soo xariir taleefoonka: 206-684-3000.

This report cost \$0.38 to produce and mail to you.

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