

CITY OF
SPOKANE

Water

QUALITY
REPORT

2019



A Note to Our Customers

2019 Water Quality Report

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For over 29 years I have served the community in the Water Department and during the last 7 of those years, I had the privilege to lead as the director. Throughout my tenure, I have witnessed many amazing changes and we have overcome some difficult challenges. Yet one thing has always remained constant – the Water Department’s mission to provide safe, clean, reliable drinking water and protect the public’s health and safety.

Those core elements are reflected in this year’s Consumer’s Confidence Report. In line with past years, the drinking water provided to your homes, schools and businesses meets or exceeds the standards required by state and federal regulatory agencies. We are extremely proud to provide you reliable, high-quality drinking water.

In this year’s report we’ve highlighted our new policy on hydrant use and our cross connection control program—some of the many ways we work to protect our drinking water by ensuring contamination does not enter the water system. We continue our commitment to reducing system loss by metering hydrant use and are now able to ensure the cost to provide water through hydrants is captured by those who use it.

With gratitude, I am proudly concluding my service to our customers and the citizens of Spokane this year. I have great confidence that our mission will forge ahead and new challenges will provide us with more opportunities to improve. I’d like to recognize all of the skilled and dedicated water professionals who keep the mission moving forward in our community; they are the reason why you can depend on the reliability, quality and safety of your water.

Sincerely,



Dan Kegley
Director of Water & Hydroelectric Services
City of Spokane



Hydrant Permit Program

In July 2019 a commercial hydroseed vehicle using water from a fire hydrant in Northeast Spokane allowed some contamination to backflow into the City’s water system. A health advisory to not drink or cook with water in the isolated area was issued while Water Department staff were hard at work remedying the situation: distributing water bottles, testing water samples, replacing water meters, flushing and chlorinating the areas affected.

This costly contamination event led to an updated hydrant permit program and policies to enhance hydrant security and protect Spokane’s water system. The program requires the use of City backflow devices and measured consumption by meter. Permits issued are assigned to specified hydrants and non-compliance can result in fines.

💧 We need your help! If you see someone using a City fire hydrant without a hydrant ring and assembly cage, please call 625-7800 to report.





Backflow Prevention

- ◆ Required by state and federal law
- ◆ Required to be tested annually by state and federal law
- ◆ Keeps drinking water safe for you and your neighbors

What is "backflow"?

The undesirable reversal of flow of water or mixtures of water and other liquids, gases or other substances into the City's water system. Flow reversal can occur due to a change in water pressure.

What is a Cross-Connection?

An actual or potential connection between potable water supply and any non-potable substance or source. Common household and commercial connections to the public water system pose a threat to our clean water if not protected by the appropriate backflow prevention assembly (valves that prohibit water flowing the opposite direction).

Common Household Connections Include:

- » Irrigation Systems
- » Fire Sprinkler Systems
- » Hose Bibs

How can a backflow event happen?

Cross-contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (back-pressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks,

heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (back-siphonage).

The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers or garden chemicals. (See illustrated example below)

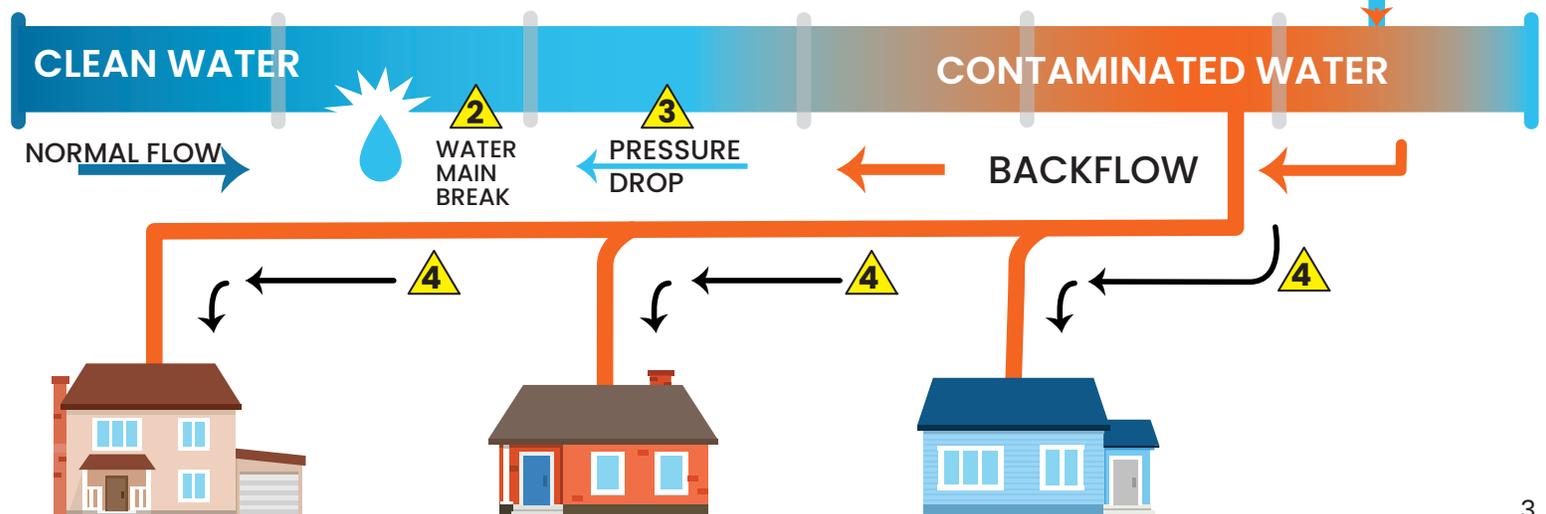
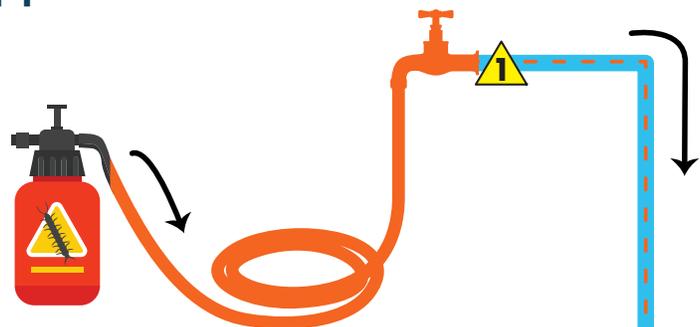
What is the City of Spokane doing to eliminate the threat of cross-connection?

Dedicated staff in our Cross-Connection Control Program have surveyed industrial, commercial, and institutional facilities in the service area to make sure that potential cross-connections are identified and eliminated or protected by a backflow assembly. We also inspect and test all water department maintained backflow protection assemblies to make sure that they provide maximum protection.

For inspection requests, answers to specific cross-connection control questions and lists of approved assemblies please contact the Spokane Water Department Cross Connection Control Program at **509.625.7969** or by email at **WaterCrossConnection@spokanecity.org**.

Example of How Backflow Can Happen:

1. Your home has a connection to the water system not protected by a backflow device.
2. Water pressure is reduced because of a break in the water main.
3. The sudden drop in pressure creates a reversal of water flow.
4. The dangerous chemical is siphoned back into the drinking water supply.



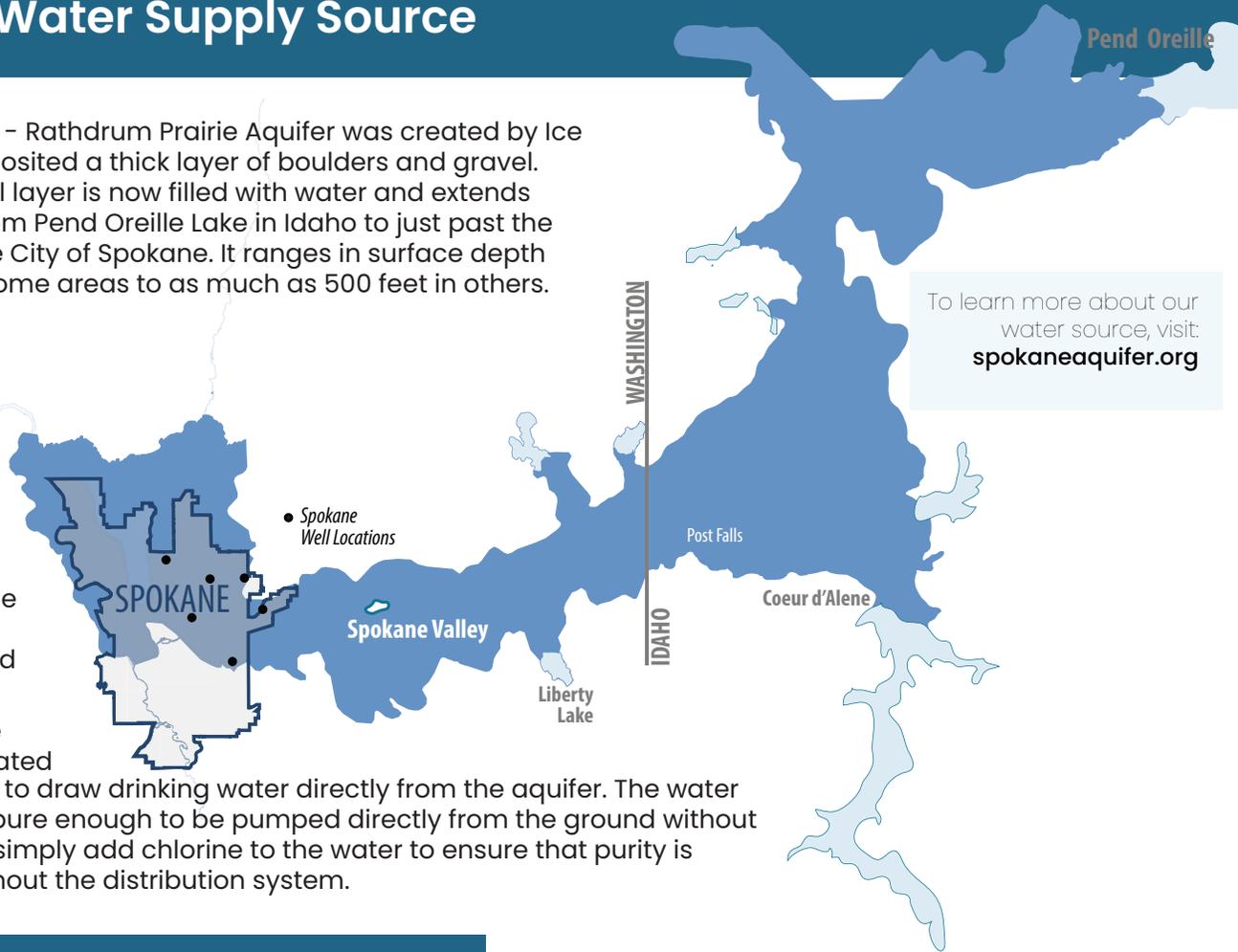


Your Water Supply Source

The Spokane Valley - Rathdrum Prairie Aquifer was created by Ice Age floods that deposited a thick layer of boulders and gravel. This rock and gravel layer is now filled with water and extends 135 square miles from Pend Oreille Lake in Idaho to just past the western edge of the City of Spokane. It ranges in surface depth from a few feet in some areas to as much as 500 feet in others.

We are working and living over our drinking water source. Since our water is beneath us, it is important that we follow good stewardship practices and not pour anything on the ground or in storm drains that we would not want to drink.

The City of Spokane has seven wells located throughout the City to draw drinking water directly from the aquifer. The water from the aquifer is pure enough to be pumped directly from the ground without any treatment. We simply add chlorine to the water to ensure that purity is maintained throughout the distribution system.



To learn more about our water source, visit: spokaneaquifer.org



How Water is Distributed



Above: One of our favorite customers attempts to lift the Lamonte water tank. Right: Original pump from the Upriver Pump House, installed 1926.

To pump the water up to storage tanks and reservoirs, booster stations are located throughout the city. These stations contain large pumps and motors to help move the well water from lower elevations to the tanks at higher elevations within the distribution system. Water at a higher elevation in a tank provides water pressure to the homes below it.

More than 1,000 miles of water mains are located throughout the City. Water reaches your house directly from service lines running off smaller mains. To meet customers' needs, the City has over 100 million gallons of water stored in reservoirs. The amount of water stored in a given tank depends on both the water demand for that area as well as the fire protection requirements.

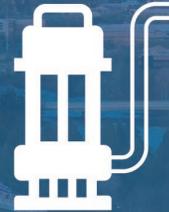
Throughout the year, hundreds of water quality tests are performed, water mains, valves and meters are repaired and replaced, and water department personnel continually search for leaks and problems to ensure you the best drinking water possible. Highly trained operators monitor the distribution system from a 24-hour control center.



SPOKANE WATER SYSTEM 2019 FACT SHEET

SUPPLY

7
WELL
STATIONS
14 WELLS



25
BOOSTER
STATIONS
72 PUMPS

34
STORAGE
RESERVOIRS
105 MG CAPACITY



22
PRESSURE
ZONES

DISTRIBUTION



250,000
POPULATION SERVED



1,980
COLIFORM
BACTERIA
SAMPLES TAKEN
ANNUALLY



1,000+
MILES OF
WATER MAIN



75,925
WATER METERS



7,558
FIRE HYDRANTS



Potential Sources of Water Contamination

Sources of Water

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 land or through the ground, it dissolves naturally occurring minerals and radioactive material, and can pick up substances from the presence of animals or from the presence of human activity.

Potential Contaminants

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations which limit the amount of certain contaminants in the water provided by public water systems. U.S. Food and Drug Administration regulations establish the limits for contaminants in bottled water, which must provide the same protection for public health.

All 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 can be obtained by visiting the EPA's Safe Drinking Water Website: epa.gov/safewater

People Who May be More at Risk

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as those with cancer undergoing chemotherapy, transplant recipients, persons with HIV/AIDS or other immune disorders, some elderly and infants can be particularly at risk for infection. These people should seek advice from their health care providers.

The US EPA - Center for Disease Control guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbial contaminants are available from the EPA's Safe Drinking Water Hotline (800-426-4791) and website: epa.gov/safewater

ARSENIC

City of Spokane drinking water currently meets EPA's revised drinking water standard for arsenic. However, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the cost of removing arsenic from drinking water.

EPA continues to research the health effects of low levels of arsenic, which

is known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems. Information on arsenic in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline.

LEAD

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. The City of Spokane 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 1-800-426-4791, or at epa.gov/safewater/lead.

Radon

Radon is a naturally occurring radioactive gas that is common in the Spokane area. During 2019, the City conducted tests from three source wells for Radon-222. The single highest result was 400pCi/L and the lowest was 350pCi/L. Exposure to excessive amounts of radon may increase cancer risk. The EPA has proposed a MCL of 300pCi/L, which has not been finalized.

Compared to radon entering the home through soil, radon entering the home through tap water would, in most cases, typically be 1-2 % of the radon in indoor air. Breathing air containing radon can lead to lung cancer and/or drinking water containing radon also may cause increased risk of stomach cancer. If you are concerned about radon in your home, you can purchase a test kit. Testing is inexpensive and easy, many radon test kits can be found online or in home improvement stores.

For more information concerning radon in your home, call the EPA's Radon Hotline (1-800-55-RADON) or visit epa.gov/radon/radon-hotlines-and-information-resources.



City of Spokane Water Quality Results for 2019

Spokane's drinking water meets or exceeds all State and Federal drinking water quality standards. In 2019, we tested for 35 inorganic parameters with detections in arsenic and nitrate. 64 organic compounds were tested for with none detected. We disinfect our drinking water with chlorine gas, resulting in the generation of low concentrations of disinfection byproducts as summarized below (total Trihalomethanes). Routine testing for microbiological contaminants produced no detections.

DETECTED CONTAMINANTS

The results of monitoring in 2019 are shown in the table below. These results are for parameters regulated by federal and state agencies. For other water quality information, check our website: spokanewater.org or call 509-625-7800.

Contaminant	Units	MCLG	MCL	Average	Range	Possible Source
SOURCE WATER TESTING						
Arsenic	µg/L	0	10	(a)	3.6 to 4.7	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Nitrate	mg/L	10	10	(a)	0.71 to 3.32	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Gross Alpha	pCi/L	0	15	(a)	<3.0 to <3.0	Erosion of natural deposits
Combined Radium 226 & 228 (b)	pCi/L	0	5	(a)	1.5 to 1.5	Erosion of natural deposits
END OF PIPE TESTING						
Total Trihalomethanes	µg/L	0	80	3.62	0.52 to 3.57	By-product of drinking water chlorination

LEAD & COPPER

During 2018, the City tested 56 at-risk residences for lead. The single highest result in 2018 was 3.58 ppb. This result for lead is below the 15 ppb Action Level for lead. In 2018, the City completed the removal of all known lead service lines in our water system. Source water is analyzed for lead concurrent with in-home testing; in 2018 the maximum concentration of all the wells was 0.16 ppb.

Contaminant	Units	MCLG	MCL	90th Percentile	Houses Exceeding AL	Possible Source
Household WATER TESTING						
Copper(c) -tested August 2018	mg/L	1.3	TT, AL=1.3	0.08 (d)	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead(c) -tested August 2018	µg/L	0	TT, AL=15	1.41(d)	0	Corrosion of household plumbing systems; Erosion of natural deposits

TERMS AND ABBREVIATIONS

Some of the terms and abbreviations contained in this report are unique to the water industry and might not be familiar to all customers. Terms used in the table are explained below.

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

LRAA: Locational Running Annual Average

Maximum Contaminant Level (MCL) - The highest level of a contaminant allowed in drinking water. MCLs are set as close to the

MCLG as feasible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG) - 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.

ppb: same as ug/L, micrograms per liter, and parts per billion

ppm: same as mg/L, milligrams per liter, and parts per million

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

Picocuries per liter (pCi/L) - a measure of radioactivity.

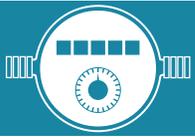
ND: None Detected

NOTES

(a) Compliance with MCL is determined by single sample results, so no average is used
(b) Gross Alpha results were used in lieu of Radium 226, one half of the detection limit of 1.0 was used for the ND.

(c) Faucet samples were from 'at risk' homes (those with lead service lines and those with copper pipes with lead solder joints).

(d) 90% of at risk homes had this concentration or less of lead/copper



Water Use Efficiency

The availability of water ensures we will have clean and sufficient water to drink, trees to shade our streets, gardens to grow, and parks to play in. The water that flows from our taps makes our life in Spokane bountiful. Each time we use water is an opportunity to make a deliberate choice to use this precious resource responsibly.

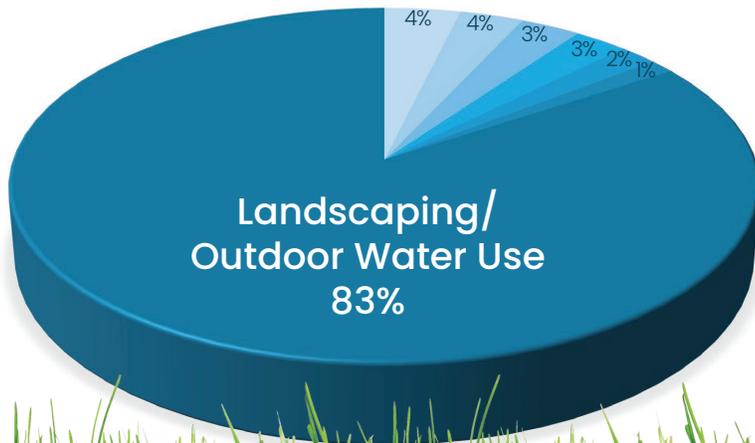
The City's adopted Water Use Efficiency Goals are based on metered usage. The goals are a 0.5% annual residential indoor reduction and a 2% annual reduction in outdoor irrigation for residential, commercial/ industrial, and government use. All of the conservation goals are based on a reduction in use from the base line period of 2002 to 2013.

Outdoor watering of lawns and gardens makes up approximately 83% of average home water use in Spokane. You can dramatically reduce your outdoor water use by cutting back on irrigation and planting more drought tolerant landscaping.

Only one of the four goals was met in 2019. Help us meet this year's goals this summer, and save money on your water bill at the same time - continue to find ways to use even less.

2019 WUE GOALS	Goal (gal/day)	Actual (gal/day)
Indoor Residential Use	119	113
Outdoor Residential Use	455	553
Outdoor Commercial/ Industrial Use	3,904	3,947
Outdoor Government Use	4,448	5,189

Where Do We Use Water The Most?



- Toilet 27 gallons
- Shower 27 gallons
- Faucet 21 gallons
- Clothes Washer 19 gallons
- Leaks 14 gallons
- Other 9 gallons
- Landscaping 553 gallons

Data is representative of average consumption; your water use may vary.

DISTRIBUTION SYSTEM LOSS

The Washington State Water Use Efficiency Rule (WUE) requires that each water system calculate the water system loss to leakage. The calculations determine the volume of water that cannot be attributed to delivery to a customer and is assumed to be lost to the ground. To comply with the WUE standard for Distribution System Loss (DSL), a water system must have a three-year running average of less than 10%. The DSL for the City of Spokane Water System for 2019 is 14% and the three-year average is 13%, which means the City has not met the DSL standard.

2017-2019 Distribution System Loss				
	2017	2018	2019	Average
DSL, percent	12.6%	11.5%	14.46%	13.00%
DSL, volume (gallons x 1,000)	2,901,465	2,731,378	3,321,717	2,984,853

INTRODUCING:

The City Of Spokane

WATER CONSERVATION MASTER PLAN



The availability of clean drinking water is one of Spokane's greatest resources. We have a great responsibility to take care of this resource by being good stewards.

About a year ago, the Spokane City Council asked the Water Department to prepare a plan to promote water conservation. The result is the proposed 2020 Water Conservation Master Plan. This conservation plan is limited to strategies that we can use to reduce "demand" for water by our customers. The 2020 Water Conservation Master Plan document can be found online at SpokaneWater.org.

IMPORTANTLY, THE PLAN IS DESIGNED TO:

Accommodate growth without additional pumping of water from the aquifer. That means we want to support population and economic growth through reduction in water use by existing customers. Using those water savings means our community can limit construction of expensive new water infrastructure to support growth.

Reduce the peak use of water in the summer time used for outdoor irrigation. **Water use more than triples** in summer months as our citizens water their lawns and gardens, along with parks and golf courses and other high irrigation users. Lowering that peak demand for water builds a safer, more reliable, and more cost-

effective water system. It also has the potential to lessen the impact on river flows during dry months.

To work toward these goals, our plan expands on current conservation program elements. Things like education, facility efficiency improvements, rebate programs, our wastewater conservation credit and a tiered water consumption rate structure already are used to promote conservation.

If the plan is adopted, customers can look forward to a new menu of water efficiency rebate opportunities including: high efficiency toilets, low-flow showerheads, irrigation controllers, sprinkler nozzles, expansion of our popular SpokaneScape program, and more. We are working to invest dollars wisely to achieve conservation goals, while also maintaining the affordability of water service for our citizens.

As a City, we also are working on "supply" side improvements to reduce water use. We have robust programs to reduce distribution system loss, to improve water meter accuracy, and more. These programs are part of the City's Water System Plan, which is submitted to the Washington state Department of Health.

Taking care of our water requires all of us to have a role. This plan provide lots of great insight into how to do just that.



AVAILABLE CUSTOMER INCENTIVES



**500
SHOWER
HEADS**
1 MG SAVED



**1,100
HIGH-
EFFICIENCY
TOILETS**
13 MG SAVED



**10
COOLING
TOWER
CONTROLLERS**
2 MG SAVED



**1,000
EFFICIENT
SPRINKLER
NOZZLES**
**300,000
GALLONS
SAVED**



**110
IRRIGATION
CONTROLLERS**
1.5 MG SAVED



**110
SPOKANESCAPE
REBATES**
1.4 MG SAVED

•MG: MILLION GALLONS



Customer Resources

Water Quality

Learn more about water quality online at: SpokaneWater.org or email waterinfo@spokanecity.org

Report urgent concerns, such as water outages, discolored water, leaks, hydrant missuse to the Water Department's 24-hour radio room at: **509-625-7800**

Ask questions about Spokane's water quality, such as chlorine or hardness at: **509-742-8166**

Ask general water quality questions:

Office of Drinking Water Washington DOH Eastern Regional Office: **509-329-2100**

Spokane Regional Health District: **509-324-1560**

Department of Ecology Eastern Regional Office: **509-329-3400**

Spokane County Water Resources: **509-477-3604**

EPA's Safe Drinking Water Hotline: **800-426-4791**

Conservation & Rebates

Explore tips, assistance, and rebates to help you save water at: WaterWiseSpokane.org or call **509-625-6293**

Billing

Manage your account at: MySpokane311.org
Speak with a representative, Monday-Friday (7 am-6 pm) at: **311 or 755-CITY** (for calls outside City limits)

Community Participation

The Mayor recommends Water Department policy and rates to the Spokane City Council. The Council meets every Monday, excluding holidays, at 6:00 pm in the Council Chambers at City Hall (808 W Spokane Falls Blvd., Spokane, WA).

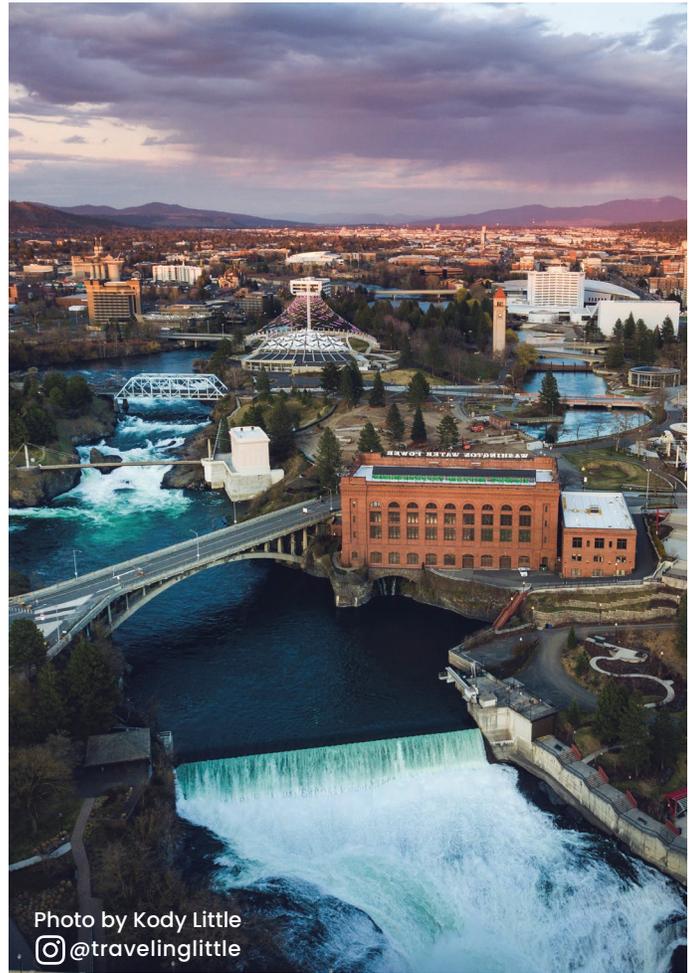


Photo by Kody Little
[@travelinglittle](https://www.instagram.com/travelinglittle)

**We're here for you.
Today. Tomorrow.
And every single day after that.**

Contact us for answers.
509-625-7800 (24 Hours a Day)
Email: waterinfo@spokanecity.org
www.spokanewater.org



This report contains important information about the drinking water supplied by the City of Spokane. Translate it, or speak with someone who understands it well.

Вэтом отчете содержится важная информация относительно питьевой воды, поставляемой службой города Спокэн. Переведите этот отчет или поговорите с тем, кто его хорошо понимает.

Este contiene información importante acerca del agua potable suministrada por la Ciudad de Spokane. Tradúzcalo, o hable con alguien que lo entiende bien.

Bản phúc trình này chứa đựng những thông tin quan trọng về nước uống được cung cấp bởi City of Spokane. Hãy phiên dịch, hay hỏi thăm người nào hiểu rõ về tài liệu này.

Water Quality Q & A

You have questions about Spokane's water. We have answers.

◆ How safe is Spokane's water?

City of Spokane water is very safe for drinking and cooking. Our drinking water meets or exceeds all State and Federal drinking water quality standards. The Water Department performs thousands of tests each every year to ensure our water is safe to consume.

◆ Where does Spokane's water come from?

All of our water comes from an underground aquifer—the Spokane Valley–Rathdrum Prairie (SVRP) aquifer, which was designated a sole source aquifer in 1978.

◆ Does Spokane add chlorine to our water?

Yes, we add small quantities of chlorine to our water, around 0.3 parts per million. We have been adding chlorine to the drinking water since 1934 to ensure the water delivered throughout the entire distribution system is free of bacterial contaminants.

◆ Why is my water hard?

The hardness comes from calcium carbonate dissolved from the SVRP aquifer. Almost all groundwater has some level of hardness. The annual average hardness in grains per gallon is: 9.5 grains/gallon.

◆ What is Spokane doing to ensure our water is safe and reliable?

The City of Spokane works on many fronts to ensure the water provided is safe and reliable. The City of Spokane Water Department Cross Connection Control Program protects our water system from potential sources of contamination. This includes programs to inspect

backflow protection devices for proper operation.

There are well trained maintenance crews to keep our pumps in top operating condition and to maintain our network of pipes and tanks.

Certified Water Operators are staffed around the clock to make sure reservoirs are full, system pressure is maintained and the proper amount of disinfection chlorine is present throughout the distribution system.

Water quality is monitored continually to ensure we are providing safe drinking water. Over 1,900 samples are collected annually to make sure the distribution system is free of bacterial contamination. Sampling of water from the aquifer is performed annually for up to 200 organic chemicals and 35 inorganic compounds.

We partner with other water systems in the Spokane Aquifer Joint Board and the Idaho Washington Aquifer Collaborative to inform the public on ways they can protect our aquifer. This includes work with the EnviroCertified program to recognize business that have good dangerous waste handling and disposal practices.

◆ Does Spokane have lead pipes?

Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Water enters your home from a service line that connects to the water main.

The last of the known lead service lines were removed in July of 2018. There are no other known lead pipes in the City of Spokane water distribution network.



◆ Is bottled water better than tap water?

Our expert staff would say NO! Here are 5 reasons why:

1. Stricter Regulations: Bottled water is regulated by the FDA, and tap water by federal (EPA) and state (DOH) agencies. The FDA has a less stringent testing requirements and does not require disclosure of bottled water sources, treatment processes, and any contaminant reports. Tap water is carefully regulated and continuously monitored by our staff.

2. Affordable: Bottled water is estimated to cost 2,900 times more than tap. This inflated cost is partially due to the plastic encasing bottle. Spokane water costs less than a penny per gallon while the average bottle of water is \$1.25.

3. Bacterial Content: Bottled water does not contain trace amounts of chlorine to help disinfect bacteria, as tap water does, and may remain on the shelf for months before consumed, giving bacteria the chance to grow.

4. Misinformation: Up to 50% of bottled water comes from the same place as tap water, not from some exotic and pure picture-perfect mountainous water source.

5. Better for the Environment: Only 20% of plastic bottles are recycled. Transporting the bottles and keeping them cold also burns fossil fuels, which give off greenhouse gases. According to some estimates, it takes almost 1 gallon of water to produce one bottle of water!

Spokane Water: a look back

Historic Investment Benefits Us Today

The City of Spokane Water Department began in 1884 when a small company that furnished river water from downtown Spokane was purchased. Our original system consisted of one pump, driven by a hydraulic turbine and a few hundred feet of wooden mains, delivering 2 million gallons of water per day to 8,800 residents.

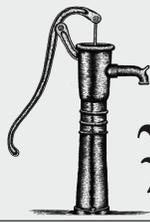
As the City increased in size, it became apparent that a larger waterworks in an area with fresh, clean water was needed. Five miles east of the City, construction of the Upriver Dam and Pumping Station began in January of 1894. By 1896 a timber crib dam and a pumping station with a capacity of 10 million gallons a day was completed.

By 1900 the population had soared to 37,000 people and Spokane continued to grow at such a high pace that additional pumps were installed nearly every year between 1898 and 1907.

The nearby towns were rapidly becoming cities and their sewer systems would discharge into where Lake CDA narrows into the Spokane River. A new and entirely different source of water was needed.

Luckily, a large supply of "pure spring water" had been discovered during the construction of the Upriver facility. In 1907 test wells were dug and an exceptionally pure source of drinking water was found.

Unknown at the time, we had tapped into the SVRP aquifer which has been the sole source of drinking water ever since.



Spokane Water Chronicles

VOL CXXXV

PURE, NOT PURIFIED.

TWO CENT EDITION

"SPOKANE WATER SUPPLY TOO PURE."

START AT 1 P. M.

The New Water Works Will
Send Water Into the
City Today.

IS A POWERFUL PLANT

We Can Have Pure Spring Water
Any Time—History of the
Waterworks.

The last link required to connect the new waterworks with the water system of the city was forged last night, and if no unforeseen accident occurs the big pumps will be started and water will be forced through the long main into the city at 1 o'clock this afternoon. The plant is one of the most complete on the coast, and its completion affords the city of Spokane a pure power of a magnitude and value that can hardly be overestimated. The plant as it now stands is capable of developing over

between the piles to stop the flow of water. The water continued to rise as the gap was contracted, and soon after the last pile was driven the water flowed over the dam. The damming up of the river caused the water to back up a distance of nearly three miles, obscuring the big riffles and the island above, and forming a lake, in which the current is hardly perceptible. This lake is expected to afford fine sport trolling for fish, and several boats will be placed on it in the spring. If the authorities do not interfere it is not improbable that some one will establish a boat house on the lake.

THE HEADRACE.

The big headrace, which conducts the water from the river to the pumping station, is a river in itself. The water in the race is at present from 14 to 16 feet deep. The hundreds of tons of earth that had to be excavated are piled up on either side in great long heaps, far enough away so that the earth and gravel cannot roll back into the race. One hundred and fifty thousand cubic yards of earth was removed in excavating the race. The total amount of excavation for the entire plant was about 185,000 cubic yards. The dam that stops the water in the headrace just above the power station is of solid granite, like the abutments and wing walls.

The big headgate is operated by the latest improved machinery for that

CHECK THE AWFUL WASTE

So Give Spokane Plenty of
Water for Years to
Come.

Over the long distance phone today Professor O. L. Waller of Pullman, who was a member of the committee of engineers which prepared the plans for Spokane's improved water system, was asked by the Chronicle as to the sufficiency of the plans for the future needs of Spokane.

"The water system recommended by the committee of engineers would be adequate for many years to come," stated Professor Waller. "But the city should cut out of the waste of water, either by the use of meters or by inspection. Meters would be the most effectual."

"There is no need of using any such quantity of water as Spokane is using at present. The plan as submitted would work without meters, but the city certainly should take some steps to cut off the needless waste of water. Spokane is now pumping more water than some cities are doing which have three times the population."

"In the report we stated that less than 14,000,000 gallons should be sufficient for the needs of Spokane for a maximum day, and under maximum conditions. This estimate is reckoned on a liberal basis and allows for a large amount of waste. The present capacity of the pumps

From Spokane Daily Chronicle
April 20, 1908

The people of Spokane will be able to travel across the new Washington street bridge by May, and will be drinking the underground water on or before the middle of the same month.

City Engineer Ralston stated this morning that a week or 10 days will finish the work on the Washington street bridge, and all that is necessary in the development of the underground flow is to install a portion of the machinery, after which the water will be pumped into the river for several days before being turned into the mains.

* * *

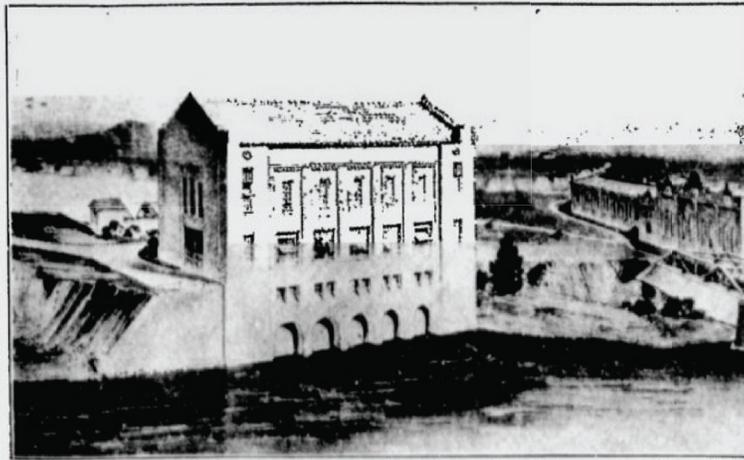
SPOKANE WATER IS FROM WELLS

The source of Spokane's sparkling, cool and pure water supply is from five wells that tap a great underground river flowing from east to west the entire length of the Spokane valley. These wells vary from 40 feet to 51 feet in depth and from 28 feet to 45 feet in diameter.

A little over half a century ago, Spokane citizens paid 25 cents a barrel for their water supply, which was obtained from a spring hauled to local homes. Later wells were dug in various sections of the little village. Pioneers will best recall the downtown well, of which the Chronicle of September 30, 1886, published the following article: "The old well at the corner of Main and Howard that has supplied the neighborhood with water for so long a time and which was one of the land marks of the city, is being filled up." Three years previous to that, Spokane's first city water service, pumped from the river, was established.

The growth of this city and its water system since then has been surprising. Yet, even more surprising has been the growth of the Chronicle, which in those days was a small four-page weekly newspaper with less than 200 subscribers. Through faithful service to this community the Chronicle has expanded its facilities for publishing the news, until today it is known as one of the nation's foremost dailies, and the preferred evening newspaper in 40,000 homes.

New Upriver Dam Planned as Means of Aiding Unemployed Men



SPOKANE'S WATER SUPPLY DRAWN FROM DEEP WELLS

Purified by Running
Through Gravel of Valley—Source Unknown.

408 miles of water main.
56,502,500 gallons maximum
pumpage.
20,690,000 gallons minimum
pumpage.
85,500,000 gallons capacity.

Two Spokane rivers flow through Spokane.

One surges and tumbles over the falls to make electricity for the native Inland Empire, and delights for the tourists.

The other flows uninterrupted through the mains of the city water system, clear, cold and sparkling, to quench the thirst of the citizens of Spokane, and keep the lawns green.

When Spokane needed water for drinking purposes, back in the '80s, and the Spokane river became a rather questionable source, the members of the water division went hunting, and found a spot five miles east of town, near the river, that looked as if it might produce drinking water.

First Unit in 1894.

In 1894, the first unit of the present water system was built at Upriver. The dam, which furnishes hy-

draulic power for the pumping system, was constructed then, and a 10,000,000-gallon plant was built, drawing water from the river. Reservoirs were the next question, for it was necessary to have a storage area. In 1907 the first well was sunk at Upriver, and since that time no river water has gone through the city plant. Two additional wells were added within a short time, and the system enlarged.

The next addition was an electric power unit that added materially to the daily capacity of the plant. Two wells, and what is known as the "well station," were added in 1924, with electrically-operated machinery within the walls. The present daily capacity of 85,500,000 gallons was the result.

The source of the water, which so far has proved unlimited, is still a matter of conjecture. But its purity has been declared the best that can be secured from natural sources. It filters into the wells from the gravel subsoil of the valley, insuring the right of the department to the claim "Pure, but not purified." The temperature of the water, which is constant at 45 degrees Fahrenheit, summer and winter, makes it exceptional drinking water.

Wells Kept Pure.

Concrete housing over the wells and an elaborate system of drain-

age around the plant insure the minimum possibility of contamination from the surface, and keep the water cool. All of the wells are sunk to a depth of 45 feet.

In distributing the water throughout the city, the department has employed the gridiron system of mains, placed at half-mile intervals, forming a square, with cross-connected pipes on each street called service mains. Fire hydrants, numbering 2565 have been installed with a view to giving the greatest possible amount of protection.

The question of measuring the amount of water used by services has been taken care of by the installation of 28,157 meters, which are read monthly. The investment in the present system, on the part of the citizens of Spokane, has amounted to \$5,890,603.75, which would amount to considerably more, were the system to be replaced at the present time.

There are 150 producing mines in the territory surrounding Spokane.

Twenty-five thousand horsepower of electrical energy is generated by the Monroe street plant of the Washington Water Power company.

The Spokane airport, one-half mile by one mile, is one of the finest and largest landing fields in the United States.

Already the inquiries in response to advertising are heavier than last year, and the Chamber of Commerce officials feel the country is learning of Spokane and that the advertising is showing a cumulative effect.

SPOKANE WATER SUPPLY TOO PURE

"Spokane's water supply is too pure."

"This was the statement today of Dr. Ralph Hendricks, commissioner of public affairs, in explaining the strong taste of chlorine in city water.

"All cities that use surface water—and most of them do—are forced to purify with chlorine," Dr. Hendricks said. "Impure water containing organic matter absorbs chlorine so it is not tasted. Water such as comes from Spokane's well, containing no organic matter, gives a much stronger taste of chlorine because it is not absorbed.

"So far as taste is concerned, people would be better satisfied if we turned the Spokane river into the wells, where organic impurities would absorb the chlorine."