



PROTECTING YOUR WATER RESOURCES

2023 WATER QUALITY REPORT

TACOMA  WATER
TACOMA PUBLIC UTILITIES

A MESSAGE

FROM YOUR WATER SUPERINTENDENT

Thank you for entrusting Tacoma Water to fulfill our mission to provide clean, reliable services essential to the quality of your life. We know the importance of safe drinking water and strive every day to deliver water to you with great care and efficiency. This year, we celebrate the 50th anniversary of the Safe Drinking Water Act, which established national drinking water standards, and highlight details about it in this report.

Tacoma is fortunate to have an excellent source of water from the Green River, which we rely upon for over 95 percent of our supply needs in most years.



We actively steward the land and resources of the watershed, a testament to our commitment to



environmental responsibility. That commitment includes maintaining water quality and mitigating environmental impacts.



We monitor and protect our groundwater supplies (wells) through measures like the South Tacoma Groundwater Protection District to rely upon those sources when needed. You will read more about how we ensure source water protection in this report.

I am incredibly proud of the Tacoma Water team's swift response to the Tacoma paper mill's closure in the fall of 2023, which accounted for almost one-third of the average demand on our water system daily. As a result, we had to act quickly to adjust system operations to the demand that occurred with little warning. We continue to monitor and adjust our operations and maintenance to deliver the high-quality drinking water you have come to expect.

We enjoy sharing this report to give you confidence that we proactively manage our water system from the source to your tap. We always welcome your feedback on improving our service.

Scott Dewhirst, Superintendent



▲ Little Eagle Lake in the Green River Watershed.

PRESERVING OUR FUTURE GROUNDWATER SUPPLY

We are fortunate to have the Green River and numerous groundwater wells to supply us with clean, reliable drinking water. Protecting our water sources is critical to ensure the water remains safe and pure.

We use 24 wells in our service area seasonally in addition to our water sources in the Green River Watershed. These wells provide a necessary supplemental and backup water supply. Wells are less affected by droughts than are river flows and add valuable diversity to our water sources. The advantage of groundwater is its reliability; the aquifer typically recharges yearly during the wet winter.



▲ Our wells supplement our drinking water supply to meet peak summer demands.

To protect our groundwater resources, we developed a Wellhead Protection Program to prevent and control contaminants in the aquifer areas.

We examine and document all possible sources of contamination that may threaten the aquifer and consider current, past, and future land uses that could pose a danger. Once we put controls in place to mitigate any potential hazards from becoming contaminants reaching the aquifer, we notify regulatory authorities, landowners, and business owners.

Public education is a valuable tool for implementing our Wellhead Protection Program. When individuals understand the potential impact of their actions on the aquifer, they may contribute to its protection.

This active involvement is a crucial aspect of drinking water protection, and we are continuously refining our program as new information emerges.

PROTECTING WATER QUALITY WITH INVASIVE SPECIES PREVENTION

One way to protect water quality involves preventing invasive species in the Green River Watershed. We inspect various terrestrial and aquatic tools and equipment brought into the watershed by our partners to perform work. We look for plants or animals that have yet to be removed from the equipment during cleaning before entering the watershed. We search for fragments of plants, eggs, shells, mussels, seeds, etc., that could compete with native plants, cause soil alterations, and interfere with wildlife food and habitat. The number of inspections varies yearly depending on the number of projects taking place and the equipment required to complete them.

In 2022, we performed over 24 invasive species inspections on various tools and machinery, from waders and boots to excavators to large boats.

Invasive species create a severe imbalance in native ecosystems by crowding out plants and taking limited nutrients and water. Many species are highly detrimental due to their efficient reproduction and growth. One invasive species we heavily guard against is the freshwater Zebra mussel. These non-native mussels create uninhabitable conditions for fish, and attach and clog critical infrastructure such as pipes and valves.

Another culprit is knotweed, a terrestrial plant that spreads rapidly. It attaches to riverbanks, crowds out native plants, and offers little bank stabilization via its root system.

These negative attributes can significantly affect water quality and escalate water treatment costs. The watershed is free from several of Washington state's most prolific invasive species, thanks to the successful collaboration between our utility, landowners, and other interested parties. This achievement in maintaining and protecting our forests and waterways threatened by invasive species ensures clean drinking water and safeguards the plants and wildlife that depend on these resilient habitats.



▲ Small snail discovered during an aquatic invasive species inspection.



▲ Using an endoscope camera to inspect a boat for aquatic invasive species.

CARING FOR OUR NATURAL RESOURCES LEADS TO GREAT TASTING WATER

The Green River Watershed is approximately 148,000 acres of forested land where rain and snowmelt filter into the ground and flow into streams, forming the Green River. Dedicated staff provide security and maintain the forest, streams, culverts, and roads.



▲ Healthy forests keep our water source clean for wildlife.

We monitor our large tributary streams, lake shores, and forest lands. These waterways and trees are strategically located along the upper Green River to provide a buffer from activities that might impact water quality. As outside interests increase and climate conditions change, we look for opportunities to acquire additional land in the watershed to increase our protective buffer and habitat. Ownership of these areas provides the best means to protect sensitive resources and control access as they become available.

We oversee forest lands to protect water quality and provide fish and wildlife habitat. Healthy forests stabilize hillsides with strong roots, reducing the amount of fine sediment reaching the Green River. They minimize soil erosion by intercepting rainfall and catching, storing, and transforming nutrients, toxins, and other contaminants that might otherwise contact the river and groundwater.



Our watershed has many notable species, such as Chinook salmon, bull trout, black bear, and elk. We protect the water source and ecosystems to ensure enough water for people and wildlife.



▲ Bridges protect the environment and provide safe transport.

Roads are an integral part of the infrastructure within the Green River Watershed. We proactively maintain and repair road infrastructure such as culverts and bridges to reduce the introduction of fine sediment to rivers and streams.

Proper care of our roadways is essential to keep roads open, ensure water systems function, and provide adequate drainage.

Since 2018, we've replaced 51 culverts and constructed a new bridge to provide safe transportation, protect the environment, and ensure water quality.

EMPLOYEE SPOTLIGHT



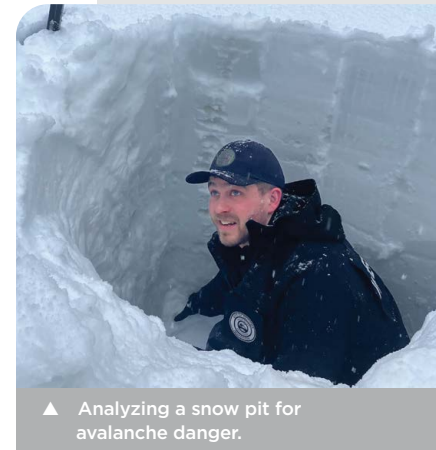
Nick U. Watershed Inspector

“As a watershed inspector, I am responsible for protecting and promoting clean drinking water for thousands of people. I follow water quality regulations and cooperative land ownership agreements to ensure unnecessary hazards don't affect our water source. I operate in the Green River Watershed and respond to emergencies, inspect critical infrastructure, interact with landowners and others, and patrol for water quality issues daily.

I learned about this position during college while studying fisheries and forestry. Since then, I have used my passion for helping others and the environment to make a positive difference in the watershed. The different day-to-day work my position entails and its meaningful impact on our community is why I enjoy my work. I take pride in being the first line of defense for this critical resource many rely on.”



▲ Patrolling the forest.



▲ Analyzing a snow pit for avalanche danger.



Nik N. Fisheries Biologist

“As a fisheries biologist, I assist my team in complying with various federal, state, local, and tribal laws and agreements relating to fish and water in the Green River. I work on projects and programs to meet the requirements of our fish passage facilities. I stay current on relevant issues and communicate with other City of Tacoma departments, and I represent our utility on two salmon recovery teams. Some days, I wade in the Green River to observe fish habitats. Other times, I don a mask, snorkel, and dry suit to perform maintenance on fish habitat sites.

The thing I enjoy most about my job is providing such a vital service. By complying with these obligations, we can continue supplying our customers with uninterrupted drinking water supply while preserving the region's natural resources.”



▲ Performing a safety audit at a fish passage facility.



▲ Maintaining a fish habitat project.

UNDERSTANDING THE TERMINOLOGY

One part per million (ppm) and one part per billion (ppb)



Visualizing 1 ppm

Four drops of water in a 55-gallon rain barrel



Visualizing 1 ppb

One drop of water in a 13,000-gallon swimming pool

Picocuries

The curie (Ci) is a standard measure for the intensity of radioactivity contained in a sample of radioactive material. A picocurie (pCi) is a measure of the rate of radioactive decay of radon. One pCi is one trillionth of a curie.

 1 pCi = 0.000000000001 Ci

Definitions

Maximum Contaminant Level (MCL):

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 technology.

Maximum Contaminant Level Goal (MCLG):

The level of a contaminant in drinking water below for which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level Goal (MRDLG):

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.

ppm

One part per million.

ppb

One part per billion.

NTU

Nephelometric Turbidity Unit is a standard to measure water clarity.

AL

Action Level is the concentration which, if exceeded, triggers treatment or other requirements that a water system must follow. Action Levels are reported at the 90th percentile for homes at greatest risk.

Minimum Reporting Level, also known as Method Reporting Limit (MRL):

The smallest amount of a substance we can reliably measure and report in a sample.

N/D

Not Detected (result is below the laboratory minimum detection level).

N/A

Not Applicable.

N/R

Not Regulated (not currently subject to EPA drinking water regulations).

REPORTING CHEMICALS IN YOUR WATER

The water quality table below shows substances we identified at the water source, treatment plant, and in the distribution system during our most recent sampling. The table doesn't include the other 35 inorganic chemicals, 67 volatile organic chemicals, and 73 synthetic organic chemicals we test for—including many industrial chemicals, herbicides, and pesticides—but did not find.



▲ The Green River provides 95 percent of our drinking water.



Regulated at our groundwater sources

Constituent	Highest level allowed (MCL)	Highest level detected	Ideal goals (MCLG)	Range of level detected	Regulation met	Potential sources of contaminant
Arsenic	10 ppb	1.7 ppb (2021)	0	0-1.7 ppb	Yes	Natural erosion
Nitrate	10 ppm	4.06 ppm (2021)	10 ppm	0-4.06 ppm	Yes	Agricultural uses, septic
Trichloroethylene	5 ppb	1.4 ppb (2020)	0	0-1.4 ppb	Yes	Industrial contamination

Unregulated at our groundwater sources

Chloroform	N/R	0.72 ppb (2020)	N/R	0-0.72 ppb Average 0.097 ppb	N/R	Industrial contamination
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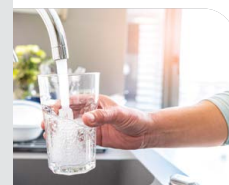
Regulated at our treatment plant

Fluoride	4 ppm	0.87 ppm	4 ppm	0-0.87 ppm	Yes	Treatment additive
Turbidity	1 NTU	0.039 NTU	N/A	0.015-0.039 NTU	Yes	Soil erosion



Regulated in our distribution system

Constituent	Highest running annual average allowed	Our running annual average	MCLG	Range of level detected	Regulation met	Potential sources of contaminant
Total trihalomethanes	80 ppb average	10.4 ppb average	N/A	5.8-18.5 ppb	Yes	Disinfection interaction
Haloacetic acids	60 ppb average	2.3 ppb average	N/A	<1-7.6 ppb	Yes	Disinfection interaction
Bromate	10 ppb	0	0	0	Yes	Disinfection interaction
Chlorine residual	4 ppm	N/A	4 ppm (MRDLG)	0.30-1.55 ppm	Yes	Treatment additive
Total coliform	<5% positive	0.047%	0	1 of 2132 sites	Yes	Sampling technique



Regulated at your tap

Lead and copper sampled in 2022 (required once every three years)	90% of samples must be below the action level (AL)	90% of samples were at or below this level	MCLG	# of sites above the action level (AL)	Regulation met	Potential sources of contaminant
Lead	15 ppb (AL)	N/D	0	0 of 53 sites	Yes	Household plumbing
Copper	1.3 ppm (AL)	N/D	1.3 ppm	0 of 53 sites	Yes	Household plumbing

IDENTIFYING SUBSTANCES IN YOUR WATER

Tap water and bottled water sources include rivers, lakes, streams, reservoirs, springs, and wells. As water travels over or through the ground, it dissolves naturally occurring minerals and can pick up other substances resulting from the presence of animals or human activity. Those substances may include inorganic material such as salts and metals, synthetic and volatile organic material from industrial processes, storm water runoff and septic systems, and pesticides and herbicides from agriculture and residential uses. To ensure your drinking water is safe, the EPA and the Washington State Board of Health prescribe regulations that limit the number of certain contaminants in public water systems.



▲ Your drinking water meets or exceeds all current drinking water standards.

Organisms

Cryptosporidium (KRIP-toe-spo-RID-ee-um)

Cryptosporidium is a microscopic organism commonly found in open surface water sources. Swallowing Cryptosporidium can cause diarrhea, fever, and other stomach and abdominal symptoms. Federal and state regulations require us to treat Green River water for Cryptosporidium. We remove any Cryptosporidium that might be present effectively with filtration. We have had no reported instances of Cryptosporidium-related health problems in our service area.

Giardia (GEE-are-DEE-uh)

Giardia lamblia is another microscopic organism commonly found in open-surface waters such as rivers, lakes, and streams. Like other water systems that use open surface water sources, federal and state regulations require us to treat Green River water for Giardia.

 We kill Giardia effectively with disinfecting chemicals like chlorine and ozone.

Gases

Radon


Radon is a naturally occurring radioactive gas. Breathing radon can cause lung cancer in humans. Ninety-eight percent of detected radon comes from indoor air generally released from soil beneath homes. Radon can release from tap water, but in much smaller quantities – only about one percent of radon exposure comes from drinking water. We test for radon in our groundwater sources. Federal guidelines require drinking water to contain no more than 4,000 picocuries per liter (a picocurie is a measure of radiation). We took 117 samples and tested them between 1992 and 2023. Findings show an average of 291 picocuries per liter. Our largest single test shows 530 picocuries per liter.

Minerals

Lead and Copper

Studies cited by the EPA show swallowing lead or copper can cause health problems, especially in pregnant women and young children. Lead and copper found in drinking water usually come from home plumbing. Some homes have higher levels than other homes. Water with a low pH can cause copper to dissolve directly from pipes into water and lead to dissolve from solder used to join copper pipes.

Federal and state drinking water rules establish “action levels” allowable for lead and copper in water samples collected from homes. At least 90 percent of samples may have no more than 15 parts per billion (ppb) of lead in one liter of water and no more than 1.3 parts per million (ppm) of copper per liter. Once every three years, we sample at least 50 homes for lead and copper.

 We completed the most recent sampling in 2022. Results show our system met action levels for both lead and copper.

Although we detected lead in a few homes, all were at levels below the 15 ppb action level.



To continue ensuring we meet regulatory requirements, we will continue to monitor and adjust pH levels to reduce corrosion in pipes. We will sample again for lead and copper in 2025.

Pregnant women and young children can be more vulnerable to lead in drinking water than the general population. If you have concerns about lead levels in the water at your home, have your water tested.

Running water for two minutes after it sits stagnant in the pipe for a few hours can help clean the tap and reduce the amount of lead and copper in your water. A change in the temperature of water will also tell you when fresh water arrives.

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](https://www.epa.gov/SafeWater/Lead).

EMPLOYEE SPOTLIGHT

Alex W. Water Quality Specialist

“As a water quality specialist, my work changes weekly. I sample water in the distribution system, check its chemistry, and collect samples to ensure it’s free from harmful bacteria. I also respond to water quality issues when customers call. Typical concerns are water quality, taste and odor, and discoloration. I investigate and coordinate any corrective actions to ensure the water is safe to drink.”



▲ Testing water quality.

I also maintain our Wellhead Protection Plan by collecting groundwater and wellfield samples twice a year from our aquifers. I analyze the samples for potential contaminants to monitor long-term aquifer health, and to plan for and ensure the protection of our aquifers and wellfields.

I find much satisfaction in helping connect the dots for people about how our water system works and what we do to keep it safe. As a water quality specialist, it’s easy to see the direct impacts of my work on our mission to provide clean and reliable drinking water.”

TREATING YOUR WATER

In addition to filtering your water, in 2023 we treated our Green River drinking water supply with chlorine, fluoride, caustic soda, and ozone. Treating water with the chemical disinfectants, chlorine, and ozone, is important to protect your health when water is drawn from a surface supply like the Green River. Placing disinfecting chemicals in water kills germs and microorganisms, making it safe to drink.



▲ The Green River has been our primary water supply since 1913.

Fluoride

Tacoma voters approved fluoride treatment in 1988 and 1989 because of the dental health benefits it provides. The Tacoma City Council then enacted an ordinance directing fluoridation of our water supply. We currently fluoridate at a level of 0.7 ppm.

Caustic soda

We treat our Green River water supply with caustic soda to raise the pH (a measurement of acidity) of the water, making it less corrosive on plumbing and reducing the amount of lead and copper that can dissolve into your drinking water.

Ozone


Algae and other organic material in the Green River can create an objectionable taste and odor in your drinking water. We treat the Green River water supply with ozone, which effectively destroys any undesirable taste and smells that can occur and provides disinfection benefits to help ensure your water remains safe to drink. Ozone gas generates when we expose pure oxygen gas to electricity in an ozone generator. After creating ozone gas, we combine it with water and inject into pipeline reactors at the Green River Filtration Facility.



Ozone only lasts for a few minutes in the water and is not present in the water supply when it leaves the treatment site.

Chlorine

Chlorine is our primary disinfection treatment. While it does an excellent job of killing the microorganisms that may be harmful to you, chlorine also reacts with the natural organic material commonly found in surface water sources like lakes, rivers, and streams. This reaction forms compounds called “disinfection byproducts.” We must meet drinking water standards for two groups of disinfection byproduct compounds. Byproduct levels found in water depend primarily on:

- | The amount of natural organic material in the water
-  The amount of chlorine used to treat the water
- The amount of time it takes water to reach the customer

Byproduct levels vary throughout the year. Byproducts often increase during the warmest months when our water supply has its highest levels of natural organic material and chemical reactions happen faster. We work to minimize byproduct levels and have adjusted portions of our system operations.

AN IMPORTANT MESSAGE FROM THE EPA



Your drinking water currently meets the EPA’s revised drinking water standard for arsenic. However, it does contain low levels of naturally occurring arsenic not associated with known sources of industrial contamination. There is a small chance that some people who drink water containing low levels of arsenic for many years could develop circulatory disease, cancer, or other health problems. Most types of cancer and circulatory diseases are due to factors other than exposure to arsenic. The EPA standard balances the current understanding of arsenic’s health effects against the costs of removing arsenic from drinking water.



▲ Our sustainability analysts educate the public about water conservation, water supply, and water quality.

DELIVERING YOUR WATER

Most of your water comes from the Green River in South King County. The Green River Watershed is a 231-square-mile forested area that serves as a collection point for melting snow and seasonal rainfall in an uninhabited area of the Cascade Mountains between Chinook and Snoqualmie Passes. We own land along the river, which is about 11 percent of the watershed.

Through agreements with other landowners, we limit watershed access and carefully monitor activities, such as recreation, road maintenance and logging.

We also own and operate seven wells on the North Fork of the Green River and take water from them during periods when Green River water is turbid. We supplement the Green River supply with groundwater from more than 20 additional wells to meet peak summer demands. Most are in Tacoma city limits.

Keeping you healthy

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).

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.

EPA/CDC 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).

THE IMPORTANCE OF CONSERVING WATER

When each of us uses only as much water as we need, we conserve water. Conservation makes it possible to plan and provide for residential and commercial development, only take what we need from reservoirs and wells, and leave more water in the river for fish.

When we each do our part, we help ensure enough water remains available to meet the needs of wildlife and our growing community.

We are about halfway through our Water Conservation Plan, which you can read at [MyTPU.org/WaterSystemPlan](https://www.mytpu.org/WaterSystemPlan), and we are making good progress, but could use your help!



SCAN ME

Our water conservation goal is to reduce summer (May - October) water use by 6.65 percent per person from 2018-2028, however, our community water use has remained steady overall per person. We report our progress yearly to the Washington State Department of Health as required.

Every family and business that uses water outdoors—for gardens, yards, and landscaping—plays a part in helping us reach that goal.

Want to learn more about saving water indoors and out? Would you like to apply for a new smart irrigation controller rebate? Need a free water savings kit? You can find all those and more at [MyTPU.org/WaterSmart](https://www.mytpu.org/WaterSmart).



SCAN ME

▼ Our forests and fields provide healthy habitat for wildlife.



Tacoma Public Utility Board

The Tacoma Public Utility Board is the governing and policy-making body for Tacoma Water. To be involved in water quality decisions, you may participate in public meetings, held on the second and fourth Wednesdays of each month at 6:30 p.m. in the Tacoma Public Utilities Auditorium, 3628 S. 35th St., Tacoma. Meetings are also held virtually via Zoom Meetings and televised live on TV Tacoma. For details, visit MyTPU.org.

Your Water Quality Report

This report contains information about your drinking water. Congress and the EPA require us to inform you annually about your drinking water and its impacts. Although most content in this report is required, we are pleased to share additional helpful information about your water and the work we do to get it to you. We produce and mail this report for about 56 cents per customer.

Contact information

Water Quality
253-502-8384 • WaterQuality@CityofTacoma.org

Conservation
253-502-8723 • MyTPU.org/WaterSmart

Cross Connection Control / Backflow Prevention
253-502-8215 • MyTPU.org/BackFlow
Backflow@CityofTacoma.org

Rates
253-441-4942

National Radon Hotline
1-800-55-RADON • 1-800-557-2366

Washington State Department of Health
DOH.WA.Gov/DrinkingWater

U.S. Environmental Protection Agency Safe Drinking Water Hotline
1-800-426-4791 • EPA.Gov/SafeWater

MyTPU.org/WaterQuality

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