CORVALLIS
ENHANCING COMMUNITY LIVABILITY THROUGH IMPROVED WATER QUALITY

# 2020 WATER QUALITY REPORT

## Important Information About the Water YOU Drink

Monitoring Data from 2019

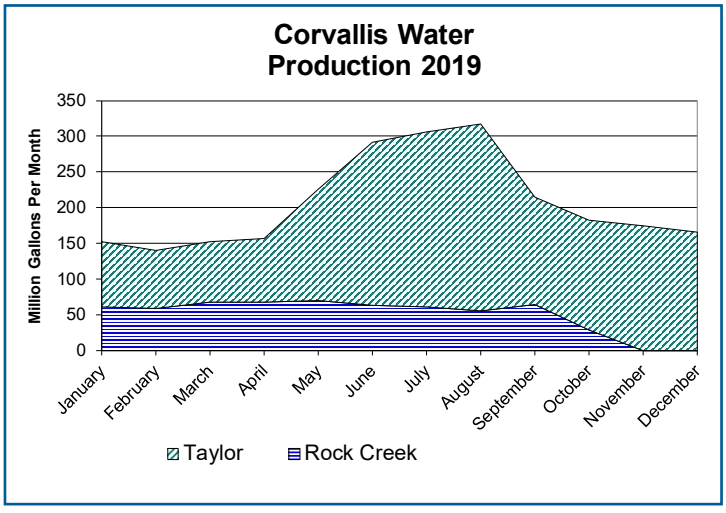
The Corvallis Water System consistently provides a reliable supply of high quality tap water that surpasses all state and federal drinking water quality requirements. The City of Corvallis strives to provide you with the best water possible. This report provides results of water quality monitoring for 2019.

## Water Sources

Corvallis drinking water comes from two surface water sources. Three creeks in the Rock Creek Watershed on the east flank of Marys Peak (north and south forks of Rock Creek as well as Griffith Creek) supply water for the Rock Creek Water Treatment Plant. The Willamette River supplies the Taylor Water Treatment Plant located in south Corvallis near Willamette Park.

**Willamette River intake and H. D. Taylor Water Treatment Plant**

**A winter day at the North Fork Reservoir which provides source water for the Rock Creek Water Treatment Plant**




Note: The Rock Creek Plant was offline from October through December for maintenance

*Printed on Forest Stewardship Council Certified paper made partially from agricultural waste*

# Water Production & Treatment

The City of Corvallis operates two water treatment plants to ensure that the water supply is safe to drink. Plant staff monitor all of the treatment systems to make certain they are working properly. The treatment plant operators are certified by the state to assure their technical competence.

**OPERATORS ADJUST THE TREATMENT PROCESS TO OBTAIN THE HIGHEST QUALITY DRINKING WATER**

The two plants treated approximately 2.48 billion gallons of water in 2019 -- about 20 million gallons less than 2018, and 37 million gallons less than 2017. The Rock Creek Plant supplied 24% of Corvallis drinking water (about 597 million gallons), and the Taylor Plant supplied the remaining 76% (about 1.9 billion gallons).

At peak production, the Rock Creek Treatment Plant can supply approximately 3 million gallons per day (MGD). The Rock Creek Plant was offline for maintenance from October through December. The Taylor Treatment Plant can supply 21 MGD.

The Rock Creek Plant runs 24 hours a day, 364 days a year and generally shuts down one day per year to complete major maintenance activities such as cleaning the sedimentation basins.

The Taylor Plant is a peaking plant and runs long enough each day to meet the water demand that Rock Creek can not supply.

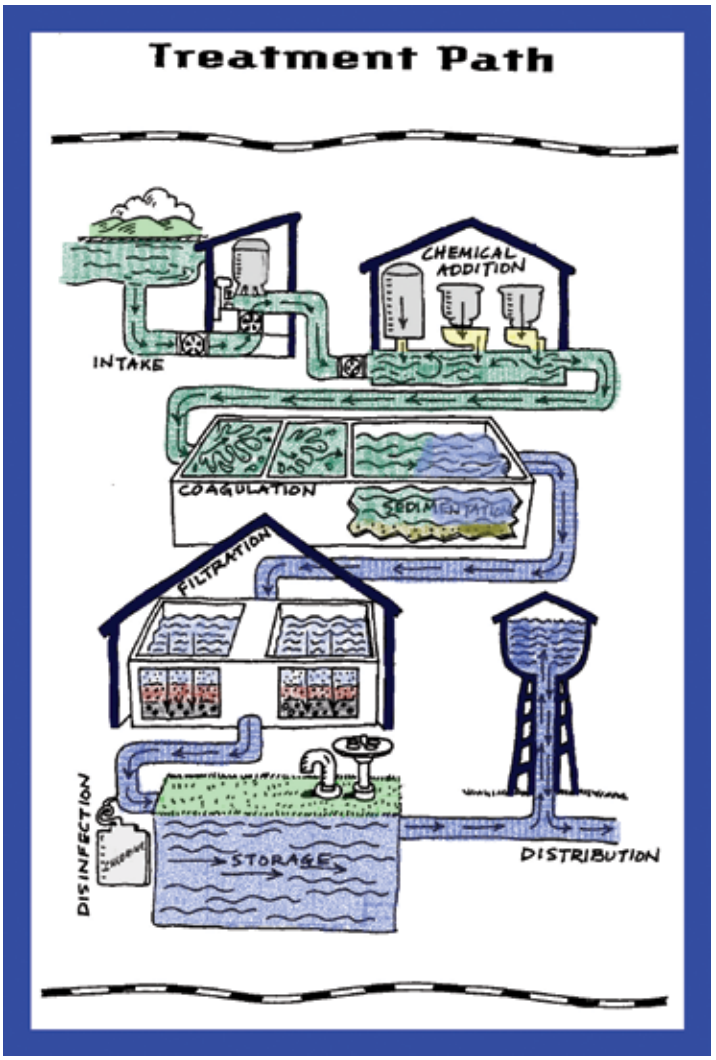
Both the Rock Creek and the Taylor Plants are known as conventional water treatment plants. Water from the Rock Creek Watershed and the Willamette River undergoes the same treatment process.

*Treatment Plant Operator Dawna Laetzsch monitors the treatment process to assure quality.*

## A Note for People With Special Health Concerns

### The following statement is required by the United States Environmental Protection Agency (EPA):

*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 (EPA) / Centers for Disease Control and Prevention (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 (1-800-426-4791).*




## Conventional Treatment

First, aluminum sulfate (alum) and soda ash are added to untreated (raw) water. Alum makes impurities clump together (coagulate) into larger particles called floc, and soda ash adjusts the pH to the ideal range for treatment. The water is stirred to encourage floc particles to grow.

Water then flows to sedimentation basins. Floc is heavier than water, so it settles to the bottom (flocculates). Settled floc is removed from the basins as a sludge and disposed.

***THE FOUR STEP WATER TREATMENT PROCESS INCLUDES COAGULATION, FLOCCULATION, SEDIMENTATION, AND FILTRATION.***

In the next treatment step, called filtration, clarified water passes through approximately three feet of layered media including carbon, sand, and garnet. The filters physically trap any remaining small particles in the water, and the carbon also adsorbs many chemical contaminants.

The Rock Creek Plant uses anthracite as a carbon source. The Taylor Plant uses granular activated carbon (GAC), which is more effective at removing any chemical contaminants that might be present.

Chlorine is added to keep water safe in the distribution system as it travels to your tap. Once disinfected, the water is called finished water. Fluoride is added to the finished water to help prevent tooth decay, and additional soda ash is added to adjust pH to control corrosion in the distribution systemi pipes.

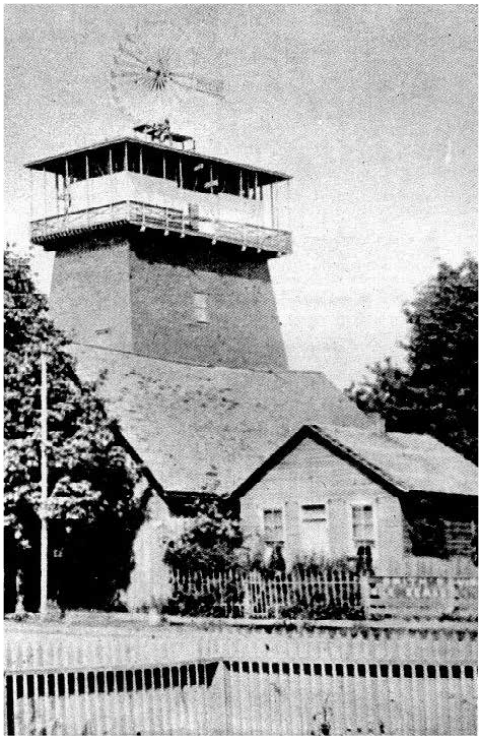
Many indicators of water quality are monitored continuously during water treatment. Much of the monitoring is automated and computer-controlled. Information on pH, hardness, chlorine content, and turbidity allows operators to optimize the treatment processes to obtain the highest quality finished water for distribution to your tap.

*Clean, clear, delicious drinking water*

# Water Distribution & Storage

Finished water is delivered through about 255 miles of water pipes, 7,084 control valves and stored in eight covered reservoirs. The reservoirs and pipes are interconnected with both water sources, so customers generally receive a blend of water from both water treatment plants.

The plants produce water at a fairly constant rate, but demand fluctuates. Reservoirs store up to 21 million gallons to ensure there is enough water available for everyone's needs and for fire protection. Ten pumping stations move water to the higher elevation storage where it flows by gravity to about 16,850 homes and businesses. Pumps provide water pressure to a few areas not served by gravity flow from reservoirs.



*Historic water pump and storage tank located at First Street and Adams Avenue, downtown Corvallis (no longer in existence)*

Water system operators monitor water levels in the reservoirs and can move water within the system and among the reservoirs to ensure the water remains fresh. Each reservoir is cleaned routinely to remove sediments and checked for structural integrity. Firefighters and maintenance crews flush water lines by periodically opening the 2,178 fire hydrants for a brief time.

# Leak Detection and Repair

City staff use sophisticated listening devices to detect leaks. Most nights, crews deploy automated microphones with data loggers that activate during the early morning hours when little water is being used. The automated devices listen for the distinctive sound of water leaking from high-pressure pipes. If a leak is suspected, the device turns itself back on a few times over the next hour to make sure. If the data logger indicates a leak when it is retrieved the next day, crews return with another device called a correlator that can pinpoint where the leak likely is. Once located, crews dig down to the main and repair the leak. By proactively searching for smaller leaks, large, catastrophic failures can be reduced or avoided. Small leaks don't necessarily make it to the surface, and using leak detection technology reduces the cost of leak repair, and it saves customers the inconvenience of a water service disruption. Often a detected leak is a fire hydrant that was not closed correctly. Other leaks require excavation and pipe repair.

***Save water and money;***
***identify and repair leaks at your home and office!***

# Water Quality & Testing

Drinking water is perishable. That is why the City of Corvallis takes steps to prevent water quality degradation from the time the water leaves the treatment plant until it gets to your tap.

Laboratory professionals take samples regularly from 33 sampling stations in the distribution system. Routine sampling lets the staff be sure that the water is free from harmful bacteria and that there are sufficient levels of chlorine for continued disinfection in the piping system. Automated, continuous water quality monitoring stations also take real-time samples from the distribution system throughout the entire day, every day, all year long. The data are continuously relayed to water system staff to assist them in optimizing water quality.

*Water Quality Analyst Gloria Zeller collects a sample from the distribution system.*

*Distribution system operator Kyle Krake flushes water lines to maintain water quality*

Technicians routinely flush water mains to remove rust or other sediment that might be trapped in the distribution system. Flushing also allows crews to make sure all the valves and fire hydrants are operating as they should. To help protect the environment, the chlorine is removed from this water before it is discharged into the storm drain system. The chlorine in the water could be harmful to aquatic life, and most storm drains discharge directly into Corvallis' urban streams.

## Microbiological Testing of Corvallis Drinking Water

The City of Corvallis tests for microbiological contamination in the water distribution system and also in the raw water sources that supply the water treatment plants. During 2019, City staff collected and tested 786 routine samples from the distribution system. No coliform or *E. coli* were found.

# Source Water Assessment and Water System Security

The Oregon Department of Environmental Quality (DEQ) has completed a Source Water Assessment for the City of Corvallis' water sources. The assessment identifies potential sources of contamination. The primary sources of potential contamination included confined animal feeding operations (CAFOs), farm machinery repair, food processing, irrigated & non-irrigated agriculture, junk/scrap/salvage yards, managed forest lands, mines/gravel pits, permitted dischargers (non-point dischargers and wastewater treatment plants), research laboratories, river recreation, septic systems, stormwater outfalls, transportation routes, underground storage tanks, and utility stations. A summary of the report is available at:
www.deq.state.or.us/wq/dwp/docs/swasummary/pws00225.pdf

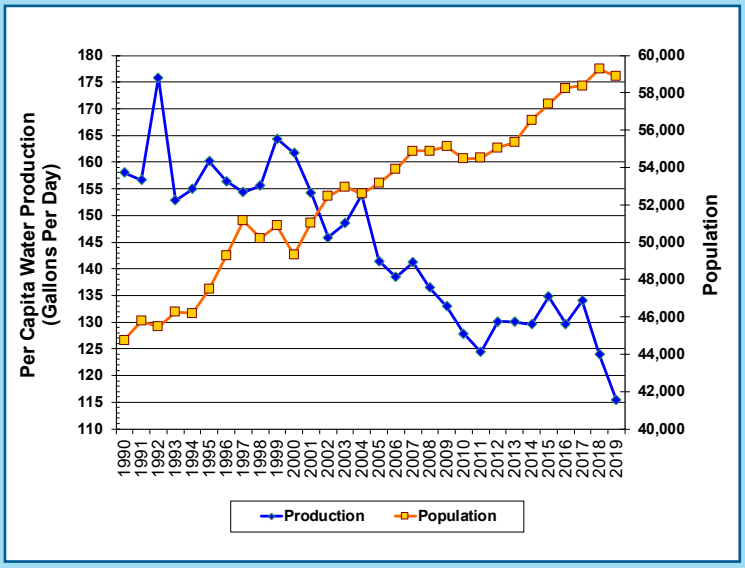
The City of Corvallis also performed a water system security and vulnerability assessment. The City installed additional fencing and surveillance cameras to limit access and to monitor activity around critical parts of the water system. Additional measures are being implemented; for security purposes, details of these measures are not disclosed in this report.

Automated water quality monitoring equipment provides water operators real-time information that can help detect threats to the safety of the water supply. It would take large amounts of a contaminant to threaten the safety of a water system. The water treatment process would deactivate many contaminants if they were introduced to a raw water source and, in many cases, remove the immediate threat to public health. The City utilizes an Emergency Operations Plan to guide the response not only to security threats, but also to earthquakes, fire, or extreme weather events.

**Fluoride** is added to Corvallis tap water to prevent dental caries (cavities). Corvallis citizens voted to add fluoride in 1952 and again in the 1960s to continue the practice. Fluoride protects teeth by reducing demineralization from the effects of plaque. The U.S. Department of Health and Human Services, the U.S. Centers for Disease Control, the American Dental Association and other leading public health authorities continue to recommend optimal water fluoridation as a significant health benefit. Fluoride protects both adults and children, but it is especially important for children.

The US EPA guidelines for drinking water limit fluoride concentration to 4.0 miligrams per liter (mg/L). The US Department of Health and Human Services (HHS) recommends fluoridation at the low end of the effective range (0.7 mg/L) due in part to the recognition that people get fluoride from sources other than drinking water (e.g., toothpaste, apple juice, and tea) and in part due to the recognition that different people drink different amounts of water. Corvallis fluoridates at a concentration of 0.7 mg/L using sodium fluorosilicate as a fluoride source. The Corvallis water utility is committed to the health and safety of its customers and is ready to respond to regulatory changes as they develop.

# Local Water Use Trends are Encouraging




The Corvallis community uses water wisely! Per-capita water use has been on a general downward trend since 1990, and it was its lowest in the last 30 years in 2019. Hot, dry summer weather drives irrigation use up, especially among single-family residential users.

Conserving water helps make Corvallis a more sustainable community. Thank you for doing your part. Challenge yourself to see if you can reduce your family's water use even more in the coming year; let's try to use less than ever.

## Tap Water: Safe, reliable, and a good value

Safe, delicious Corvallis tap water is an excellent value. While the cost of water varies depending on your elevation and the amount you use, a reasonable average is less then a half-cent per gallon. Compare this to some other common beverages you may purchase:

Bottled iced tea: $7.99 for six 17 oz bottles = $10.03 per gallon
Jug of iced tea: $3.99 for 64 oz = $6.78 per gallon
Orange juice: $7.99 for 89 oz = $11.49 per gallon
Bottled water: $3.99 for 2.5 gallons = $1.60 per gallon
Premium bottled water: $7.49 for six 17 oz = $9.45 per gallon
Oregon microbrewed beer: $7.59 for 6 12-oz bottles = $13.49 per gallon
Oregon's official state beverage (milk): $2.69 for 64 oz = $5.38 per gallon
Kombucha: $2.99 for 14 oz = 27.34 per gallon
Corvallis tap water (average*): $4.47 for 748 gallons = $0.00597 per gallon

Best of all, unlike all the other products listed, Corvallis tap water is delivered directly to your home -- any time day or night.

* The average rate for a single-family home using six units (600 cubic feet, or 4,488 gallons) per month in the first pressure level: $16.12 base fee, 6 units at $1.78. Actual cost varies based on your elevation (a higher rate to pump to a higher level) and the amount you use (you pay a higher marginal rate as your water use exceeds set thresholds).

# Primary Standards

*(see glossary of abbreviations and definitions on page 11 )*

**Results from different sites/times are averaged; range may be higher than maximum reported value**

## Treatment Plants

Taylor Treatment Plant data are not shaded. | Rock Creek Treatment Plant data are shaded

| Parameter | MCL | MCLG | Maximum Reported | Range | Likely Source | Meets Regs? |
|---|---|---|---|---|---|---|
| Turbidity [1] | TT = 95% of samples < 0.3 NTU | N/A | 0.03 NTU | 0.01 - 0.09 NTU | Soil runoff and stream sediment | Yes |
| | | | 0.03 NTU | 0.02 - 0.05 NTU | | |
| Fluoride [2] | 4 mg/L | 4 mg/L | 0.74 mg/L | 0.03 - 1.02 mg/L | Added to promote dental health | Yes |
| | | | 0.83 mg/L | 0.04- 1.09 mg/L | | |
| TOC, Raw Water | TT = 4 mg/L | N/A | 1.24 mg/L | 1.01 - 1.58 mg/L | Naturally occurring carbon, often from leaves or other organics | Yes |
| | | | 0.93 mg/L | 0.37 - 1.34 mg/L | | |
| TOC, Finished Water | TT = 2 mg/L | N/A | 0.55 mg/L | 0.37 - 0.87 mg/L | | Yes |
| | | | 0.57 mg/L | 0.21 - 1.00 mg/L | | |

1. Turbidity has no health effects but can interfere with disinfection and provide a medium for microbial growth. "TT" means a treatment technique is required if the limit is exceeded.

2. Fluoride is added to City drinking water and has been since 1952. Known for its cavity-fighting benefits, fluoride is of special interest to parents with young children. See article on page 6.

***Routine water quality testing and continuous water quality monitoring ensure a safe water supply for Corvallis.***

## Detected Levels of Secondary Standards

*Monitoring From Treatment Plants*

| Parameter | MCL (non-enforceable) | Taylor Plant Reported | Rock Creek Plant Reported |
|---|---|---|---|
| Chloride | 250 mg/L | 3.1 mg/L | 4.1 mg/L |
| Sulfate | 250 mg/L | 11.6 mg/L | 9.4 mg/L |
| Alkalinity | n/a | 32.3 mg/L | 51.5 mg/L |
| Hardness | 250 mg/L | 22.0 mg/L | 42.0 mg/L |
| pH | 6.5 - 8.5 pH units | 7.1 - 7.7 pH units | 7.0 - 7.7 pH units |
| Calcium | n/a | 5.3 mg/L | Not analyzed |
| Sodium | n/a | 22.6 mg/L | 7.5 mg/L |
| Total Dissolved Solids | n/a | 73.0 mg/L | 101 mg/L |

# Primary Standards

*(see glossary of abbreviations and definitions on page 11 )*

**Results from different sites/times are averaged; range may be higher than maximum reported value**

## Distribution System

| Parameter | MCL | MCLG | Maximum Reported | Range | Likely Source | Meets Regs? |
|---|---|---|---|---|---|---|
| Total Trihalo-methanes [3] | 80 µg/L | 0 µg/L | 27.8 µg/L | 10.5 - 35.2 µg/L | By-products of disinfection process | Yes |
| Haloacetic Acids [3] | 60 µg/L | N/A | 16.4 µg/L | 8.2 - 24.3 µg/L | By-products of disinfection process | Yes |
| Copper [4] | Action level: 90% of homes tested have less than 1.3 mg/L | 1.3 mg/L | 90% of homes tested had less than 0.305 mg/L | No homes tested were above 1.3 mg/L | Corrosion of household plumbing | Yes |
| Lead [4] | Action level: 90% of homes tested have less than 15 µg/L | 0 µg/L | 90% of homes tested had less than 3 µg/L | No homes tested were above 15 µg/L | Corrosion of household plumbing | Yes |

3. This test is performed on a quarterly basis at four locations in the distribution system most likely to have elevated levels (places in the distribution system where water is likely to have remained in the pipes longer).

4. This test is performed every three years (most recently in 2017) in homes most likely to test positive for lead and/or copper; if levels reach the action level in 10% of homes sampled, water providers must begin extra treatment. **Lead and copper have never been detected in the City's raw water sources.** More information about lead and copper is on page 14.

## Unregulated Contaminant Monitoring

*Unregulated contaminants are those that don't yet have a drinking water standard set by EPA. The purpose of monitoring for these contaminants is to help EPA decide whether the contaminants should have a standard.*

| Parameter | Average | Range | Likely Source |
|---|---|---|---|
| Manganese | 1.3 µg/L | None detected - 2.9 µg/L | Naturally occurring element. |
| Bromide, Raw Water | 5.9 µg/L | 5.2 - 7.0 µg/L | Naturally occurring element. |
| Total HAA5 [5] | 16.5 µg/L | 12 - 27 µg/L | By-products of disinfection process. |
| Total HAA6Br [5] | 2.96 µg/L | 2.6 - 3.7 µg/L | By-products of disinfection process. |
| Total HAA9 [5] | 19.4 µg/L | 14 - 30 µg/L | By-products of disinfection process. |

5. These are groups of haloacetic acids detected in the distribution system. They are disinfectant byproducts formed when chlorine or chloramine are used to treat water and react with naturally occurring organic and inorganic matter. HAA5 includes: dibromoacetic acid, dichloroacetic acid, monobromoacetic acid, monochloroacetic acid, trichloroacetic acid. HAA9 includes everything that is included in HAA5 plus bromochloroacetic acid, bromodichloroacetic acid, chlorodibromoacetic acid, and tribromoacetic acid. HAA6Br includes: bromochloroacetic acid, bromodichloroacetic acid, dibromoacetic acid, chlorodibromoacetic acid, monobromoacetic acid, tribromoacetic acid.

# The following substances were tested for and ***not detected*** in Corvallis drinking water:

## Synthetic Organic Chemicals

2,4-D
2,4,5-TP (Silvex)
Bis-(2-ethylhexyl) adipate
Alachlor (Lasso)
Atrazine
Benzo-(a)-pyrene
BHC-gamma Lindane
Carbofuran
Chlordane
Dalapon
Dibromochlorpropane (DBCP)
Dinoseb
Dioxin [6]
Diquat dibromide
Endothall
Endrin
Ethylene dibromide (EDB)
Glyphosate
Hepthachlor epoxide
Heptachlor
Hexachlorobenzene
Hexachlorocyclopentadiene
Methoxychlor
Pentachlorophenol
Bis-(2-ethylhexyl) phthalate
Picloram
Polychloronated biphenyls (PCBs)
Simazine
Toxaphene
Vydate (Oxamyl)
3-Hydroxycarbofuran
Aldicarb
Aldicarb sulfoxide
Aldicarb sulfone
Aldrin
Butachlor
Carbaryl
Dicamba
Dieldrin
Methomyl
Metolachlor
Metribuzin
Propachlor

## Inorganic Chemicals

Aluminum
Antimony
Arsenic
Asbestos [7]
Barium
Beryllium
Cadmium
Chromium
Copper
Cyanide
Iron
Mercury
Nickel
Nitrate
Nitrite
Selenium
Silver
Thallium
Zinc

## Volatile Organic Chemicals

1,1-Dichloroethylene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
1,2-Dichloroethane
1,2-Dichloropropane
1,2,4-Trichlorobenzene
1,2-Dichlorobenzene
1,4-Dichlorobenzene
Benzene
Carbon Tetrachloride
Monochlorobenzene
Cis-1,2-Dichloroethylene
Ethylbenzene
Methylene chloride
Methyl-tert-butyl-ether
Styrene
Tetrachloroethylene
Toluene
Total Xylenes
Trans-1,2-Dichloroethylene
Trichloroethylene
Vinyl chloride
Dibromochloromethane
Bromoform
Chloromethane
Bromomethane
Chloroethane
2,2 Dichloropropane
1,1-Dichloropropene
1,1-Dichloroethane
Dibromomethane
Trans-1,3-Dichloropropene
1,3-Dichloropropane

1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
1,2,3-Trichloropropane
Bromobenzene
2-Chlorotoluene
4-Chlorotoluene
1,3-Dichlorobenzene

## Microbiological and Radiological

Total coliform bacteria

*E. coli* bacteria
Alpha particles [8]
Radium 226 [8]
Radium 228 [8]
Combined Uranium [8]

6. Because there are no bleached pulp mills upstream from the Rock Creek Plant, the City of Corvallis was granted a waiver for dioxin testing from that plant. Water from the Taylor Plant is tested for compliance every three years. The last required sample was in 2013. In 2000, the City of Corvallis began testing voluntarily for dioxin twice every year, and dioxin has not been detected in any samples. The last sample was taken in August 2018.
7. A waiver has been granted by the Oregon DHS-DWP for the testing of asbestos. The waiver was based on no risk of asbestos in the source water and the absence of asbestos pipe in the City's water distribution system.
8. Radionuclides are tested once every six years. The last sample was taken in September, 2014.

# Glossary

| | |
|---|---|
| Action Level | The concentration of a contaminant which, if exceeded, triggers a treatment technique or other requirement which a water system must follow. |
| *Crypto-sporidium* | A tiny organism commonly found in lakes, rivers, and streams that can cause the disease cryptosporidiosis. The disease can be transmitted by swallowing contaminated water or food, by person-to-person contact, or through other exposure routes. Symptoms include diarrhea, nausea, and stomach cramps. |
| *E. coli* bacteria | *Escherichia coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. See also ***Total Coliform***. |
| *Giardia* | *Giardia lamblia* is a tiny organism frequently found in lakes, rivers, and streams. Swallowing this organism in contaminated food or water, exposure from person-to-person contact, or other exposure routes may cause giardiasis. If not treated, *Giardia* can cause diarrhea, fatigue, and cramps. |
| Hardness | An indication of the amount of dissolved minerals in water. There are different scales of hardness, but the Environmental Protection Agency (EPA) uses the following scale: less than 75 mg/L = soft; 75-150 mg/L = moderately hard; 150-300 mg/L = hard; over 300 mg/L = very hard. The Oregon Department of Human Services Drinking Water Program requires that hardness not exceed 240 mg/L. Corvallis tap water is considered soft at 25 to 40 mg/L. |
| Inorganic Chemicals | Examples include metals, minerals, and salts. |
| MCL | ***Maximum Contaminant Level*** The highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology. MCLs are set at stringent levels. A person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect. |
| 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. |
| NTU | ***Nephelometric Turbidity Unit*** Unit of measure used to describe water clarity. The smaller the number, the clearer the water. See ***Turbidity.*** |
| pCi/L | ***Picocuries per liter*** a measure of radioactivity. One curie is the radioactivity of one gram of radium. There are a trillion (1,000,000,000,000) picocuries in one curie. |
| pH | Indicates whether a liquid is acidic or alkaline (basic). Acids have pH values below 7, and bases have pH values above 7. A pH value of 7.0 is considered neutral. Strong bases, like drain cleaners, are called *caustics*. |
| µg/L | ***Micrograms per liter*** One µg/L is roughly equivalent to 1 part per billion. A one µg/L solution would be about one third of a teaspoon of sugar diluted in the indoor swimming pool at Osborn Aquatic Center. One part per billion is also equal to one second in about 32 years. |
| mg/L | ***Milligrams per liter*** One mg/L is roughly equivalent to 1 part per million. A one mg/L solution would be about one teaspoon of sugar divided equally among about two dozen 55-gallon drums of water. One part per million is equivalent to one penny in ten thousand dollars. |
| Primary Standards | Legally enforceable standards issued by the U.S. Environmental Protection Agency. Primary standards limit the levels of specific contaminants that are allowed to be present in public drinking water supplies. Water that meets primary standards is considered safe to drink. |
| Secondary Standards | Non-enforceable guidelines regarding contaminants that may cause cosmetic effects such as tooth discoloration or aesthetic effects such as taste, color, or odor in drinking water. |
| SOC | ***Synthetic Organic Chemicals*** Examples include herbicide and insecticide. |
| TOC | ***Total Organic Carbon*** Carbon is a precursor to disinfection by-products. |
| Total Coliform | A group of bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present. See also ***E. coli*** |
| Treatment Technique | A required process intended to reduce the level of a contaminant in drinking water. A treatment technique may be required by the US EPA or the Oregon Department of Human Services. |
| Turbidity | A measure of how cloudy water is – the smaller the number, the clearer the water. Turbidity has no health effects, however, it can interfere with disinfection and provide a medium for microbial growth. See ***NTU***. |
| Unregulated Contaminants | Contaminants that water providers are not required to test for. However, Corvallis tests for many unregulated contaminants, and to provide the most complete information for our customers, the City of Corvallis reports the incidence of these contaminants in the annual water quality report. |
| VOC | ***Volatile Organic Chemicals*** Examples include petroleum-based chemicals, industrial by-products, and dry-cleaning solvents. |

# WATER CONSERVATION

When you conserve water, you lower your utility bill and help the environment. Summer conservation can result in more water in the river for fish and aquatic organisms. Conservation reduces greenhouse gas emissions by reducing chemicals and energy used to treat and pump water and wastewater. **Try it!**

## Indoors

Find and fix leaks, especially silent toilet tank leaks, to save over 1,500 gallons per month. Use food dye or leak detection tablets available from Corvallis Public Works to identify leaks.

Install aerators on faucets, and install efficient showerheads. If your showers are 10 minutes long, increasing efficiency from 2.5 gallons per minute (gpm) to 1.5 gpm can save a family of four 1,200 gallons per month.

High Efficiency Toilets (HETs) use 1.28 gallons per flush -- a 20% savings over toilets made after 1992 and a **60% or more** savings for older toilets. Installation may qualify for up to a $75 rebate from the City! For more information on the rebate program, see www.CorvallisOregon.gov/toilet

## Outdoors: Brown is the new Green!

Consider letting your lawn go dormant. Water it only once or twice during the summer to keep it alive; it will turn golden brown. Reducing irrigation obviously lowers your utility bill, and it saves money in other ways. Dormant grass won't grow fast, so you won't have to mow as often. That means lower lawnmower fuel bills, and less greenhouse gasses emitted.

If you do choose to water your lawn, adjust your irrigation system to provide uniform coverage so all areas get the same amount of water.

Water in short cycles to maximize infiltration & minimize runoff. Water during late evening or early morning to reduce evaporation and drift.

Plants need different amounts of water at different times of year. Apply only what your plants need. Visit www.CorvallisOregon.gov/conserve and click on Irrigation Requirements to find out how much you need EACH WEEK.

Planning changes to your landscape? Check out the Water Efficient Plant Guide for the Willamette Valley. Choose a landscape that sips rather than gulps, and consider native plants. See www.CorvallisOregon.gov/PlantGuide, or request a hard copy from Public Works at 541-766-6916.

# Frequently Asked Questions

### *Sometimes my water tastes or smells like chlorine. Why is that? Can I get rid of the smell?*

Water systems must maintain a disinfectant residual throughout the distribution system. Prior to water chlorination, waterborne disease was a serious health problem in the United States. Cholera, typhus, polio, hepatitis and other diseases are transmitted through contaminated drinking water sources. In many countries, the water still is not safe to drink.

The amount of chlorine in Corvallis water is safe to drink, but some people are sensitive to the smell and taste. If you are, you can fill a container, cap itloosely capped, and the chlorine will dissipate within a few hours. Water is perishable, so consider keeping it in the refrigerator. Another way to dissipate chlorine is to pour water back and forth between two glasses; aeration will help the chlorine escape.

Point-of-use water filters may make tap water more aesthetically pleasing, but they will not make your water safer. If they are not maintained properly, filters can actually make water less safe to drink. Refer to your owner's manual for the filter change frequency and filter compatibility. If you do choose a point-of-use water filter, be sure to select one that is approved by the National Sanitation Foundation (NSF) and always follow maintenance instructions fully and carefully.

### *Can Coronaviruses be transmitted by drinking water?*

The disinfection process inactivates viruses should they be present. This includes coronavirus, polio, and hepatitis. It also kills bacteria like cholera and typhus.

### *Should I drink bottled water? I heard it is safer than tap water. Is that true?*

Bottled water is generally safe. It is not safer than Corvallis tap water. If you read the labels carefully, you will find that many brands of bottled water come from a municipal water supply.

There is no requirement that bottled water have a disinfectant residual. Water is perishable, and bottled water should not be stored more than a few months. Bottled water is significantly more expensive than tap water, but it generally does not provide additional safety or health benefits. Consider that for the price of a single serving of bottled water, you could purchase almost a thousand gallons of Corvallis tap water.

Creating the bottle also uses resources such as petroleum and energy. Even disposal presents a concern that should be considered when you choose whether or not to purchase and drink bottled water. Fill your own bottle with Corvallis tap water and take it with you. You may find you have a few extra dollars in your pocket.

### *How would I know about a problem with the water supply?*

The City of Corvallis keeps close watch on your water supply. The law requires that you be informed if there is a problem with your water. Potential sources for this news are the radio, television, newspapers, the Benton County Environmental Health Department, the Oregon Health Authority Drinking Water Program, or directly from the City of Corvallis.

### *My drinking water sometimes looks cloudy or discolored when it comes out of the faucet. Is it safe to drink?*

Small air bubbles can get trapped in the pressurized water system and can make a fresh glass of water look cloudy. Just as with bubbles in carbonated beverages like beer or soda, these gas bubbles will dissipate in a short time. This type of cloudiness occurs more often in the winter when the drinking water is cold because cold water can hold more dissolved air. The water is safe to drink, cook with, and bathe in. If the cloudiness settles into white particulate matter on the bottom of your glass, your water heater may have a faulty internal pipe called a dip tube; many water heaters were recalled several years ago for this problem.

Rust from old iron or galvanized plumbing inside your home can cause brown, red, or yellow discoloration and a metallic "off" taste. While the US EPA still considers this water safe to drink, the color is disturbing to many people. Running the water for a short time should help flush the rust from your system. Wait until the water is clear before doing laundry, as the rusty water can stain your clothes. If you have rust in your home's water pipes, some of this rust can accumulate in the bottom of your water heater tank and eventually can cause damage to the water heater. Please don't forget to drain the bottom of your water heater periodically to remove this potentially damaging rust from the tank.

### *Should I be concerned about lead or copper in the Corvallis water supply?*

Lead is a naturally occurring metal that was used in a number of industrial capacities for most of the 20th century including paint, pipes, solder, brass, and as a gasoline additive. We no longer use lead in many of these products, but lead from older products remain. The EPA and Centers for Disease Control and Prevention (CDC) report that lead paint is a leading source of lead exposure in older homes.

Lead is rarely found in rivers, wells or reservoirs and has **NEVER been detected in the Corvallis water supply or distribution system.** Some water pipes are still made of copper, but Congress banned lead solder, pipes, and fittings in 1986.

How do metals get into water? If standing water is in contact with lead for several hours, some lead may leach into the water and potentially may become a health concern. If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. The most common sources of lead in a home's drinking water are lead-based solder in the joints of older copper pipe, faucets made of brass or chrome-plated brass, and in some cases, water service lines. There are no lead water service lines in Corvallis.

Homes most likely to have contamination (primarily based on age) are selected for sampling. Water is allowed to sit in the pipes for an extended time and sampled first thing in the morning. If levels of lead or copper reach the action level in 10% of sampled homes, additional water treatment measures are required.

Operators at Corvallis' two water treatment plants adjust the treatment process to achieve optimized corrosion control. This significantly reduces the chances that lead will get into your water. If you have lead solder or plumbing fixtures and are concerned about lead leaching, flush the water from your pipes if you haven't used water for several hours. This is the best way to avoid high lead levels. Simply run the tap until the water feels noticeably colder (30 seconds to two minutes). Note that this method may not be effective in large apartment buildings. Remember also to drink only water that comes from the cold water tap since hot water is more effective at leaching metals such as lead.

If you are concerned about lead leaching from your plumbing fixtures or from lead solder in your home, you can have your water tested for lead. Please be sure to use a certified laboratory. Testing costs between $20 and $100. To find a certified lab, contact the Oregon Department of Human Services Drinking Water Program or download a current list of accredited labs at: http://www.CorvallisOregon.gov/WaterTesting. Additional information on testing methods and steps you can take to minimize exposure is available from EPA's Safe Drinking Water Hotline at 1-800-426-4791 or at http://www.epa.gov/safewater/lead.

### *I sometimes get a musty taste in my water. What is that? Is my water safe to drink?*

Summer in western Oregon is typically warm and dry. These conditions can encourage the growth of an organism that can cause a musty taste and an earthy odor to drinking water. The two primary contributors to this taste and odor are 2-methylisoborneol (also known as MIB) and 1,2,7,7-tetramethyl-2-norborneol (also known as geosmin). While these two compounds are not health concerns, humans are good at detecting them, even in very small amounts.

If you have lived in Corvallis for a long time, you may recall that before the mid '90s, our water had taste and odor issues almost every summer. Upgrades to our water treatment plant allowed the use of granular activated carbon to the filter beds. This virtually eliminated taste and odor for the last two decades.

Since 2016, the City can add sodium permangenate ($NaMnO_4$) during the summer months (August through October) to combat taste and odor issues. Sodium permangenate is an oxidant that can degrade not only MIB and geosmin, but also other potential chemical contaminants, and it may allow operators to reduce the amount of chlorine used for disinfection. The City also began testing for MIB and geosmin in 2016.

### *I have heard that lawns need one inch of water per week. Is this true? How much water should I put on my garden or landscape plants?*

In the early spring, the soil has all the water it can hold. As the temperatures warm and the daylight hours lengthen, plants increase the amount of water they remove from the soil, and the amount of water that evaporates from the soil also increases.

The amount of water that you apply to your lawn or landscape should equal the amount of water lost through evaporation and transpiration, often called evapotranspiration, or simply ET.

Corvallis averages about 34 inches of rain and 34 inches of ET each year. Theoretically, nobody should ever have to water their lawn at all! Of course the rain comes when plants are not growing as rapidly, so many people irrigate.

While one inch per week is a good average for the growing season, the amount of irrigation you apply should change from week to week. Your plants need more water in July than in May or September.

Call the conservation hotline at 541-766-6733 or visit www.CorvallisOregon.gov/irrigation to find out the right amount of water to apply ***each week***. If you have an irrigation controller, reset it at least monthly to avoid water waste.

**The EPA requires the following statements by all water providers regardless of whether there are contaminants in the water supply. Corvallis water is safe and fulfills all EPA requirements.**

*"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 EPA's Safe Drinking Water Hotline (1-800-426-4791)."*

*"The sources of our nation's drinking water include surface sources, such as rivers, streams, lakes and reservoirs, and groundwater sources, or wells. As water moves through the ground or over surfaces, it dissolves naturally occurring minerals and, in some cases, radioactive material. Water can also pick up substances from the presence of human or animal activity. Contaminants that may be present in drinking water include: Microbial contaminants, such as viruses and bacteria which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems; Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities."*

Este informe contiene información importante sobre su agua potable. Tradúzcalo o hable con alguien que entienda esta información.

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## Be a Water Superhero!
## Read this report to find out:

- Where your water comes from
- How drinking water is treated to make it safe
- How water is delivered to your tap
- Any contaminants in your drinking water
- How to conserve water


## IMPORTANT PHONE NUMBERS

| | |
|---|---|
| Billing and Customer Service | 541-766-6949 |
| Maintenance or Emergency Assistance | 541-766-6916 |
| Rock Creek Water Treatment Plant | 541-929-2636 |
| Taylor Water Treatment Plant | 541-766-6932 |
| Water Pressure Information | 541-766-6916 |
| Quality, Taste, or Odor Concerns | 541-766-6932 |
| Emergencies after 5 p.m. or on weekends | 541-766-6913 |
| Conservation Hotline & Irrigation Information | 541-766-6733 |
| EPA Safe Drinking Water Hotline | 1-800-426-4791 |
| Oregon Health Authority Drinking Water Program (OHA-DWP) | 1-971-673-0405 |

## Financial Statement

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## NEED MORE INFORMATION ABOUT THIS REPORT?

Contact Mark Taratoot at 541-766-6916

***Paper copies pinted on Forest Stewardship Council Certified paper made partially from agricultural waste***