



# WATER QUALITY REPORT

## Data from 2006

### Important Information About the Water YOU Drink

The Corvallis Water System provides a reliable supply of high quality drinking 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 the City's water quality monitoring program for 2006. Some of the information is rather technical, so a glossary of important terms and abbreviations is on page 11. If, after reading the report, you have questions or would like more information, please call the Corvallis Public Works Department at 766-6916. The employees of Public Works are dedicated to excellent customer service and value your input.

## Water Sources

Corvallis drinking water comes from two surface water sources. Three creeks in the Rock Creek Watershed on the east side 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. Corvallis has a Source Water Assessment. The assessment identifies current or potential contamination sources, and is available at:

[www.deq.state.or.us/wq/dwp/docs/swasummary/pws00225.pdf](http://www.deq.state.or.us/wq/dwp/docs/swasummary/pws00225.pdf)

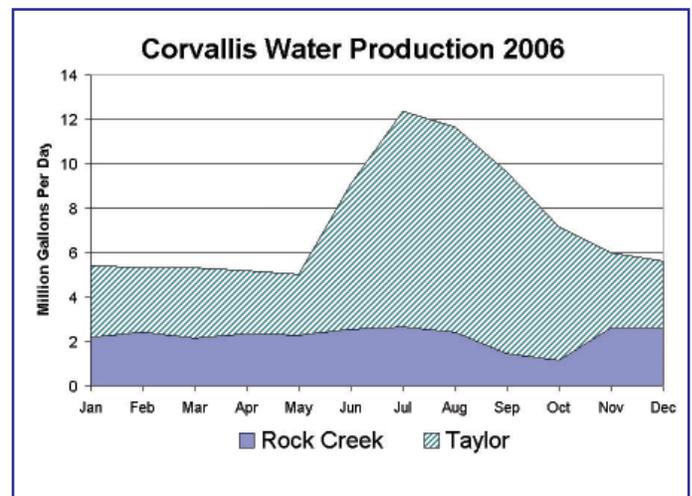


North Fork Reservoir, Rock Creek Watershed

## Water Production

The two water treatment plants operate 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.

The two plants treated approximately 2.69 billion gallons of water during 2006. This is 42 million gallons less than 2005, and 184 million



# Water Production (continued from page 1)

gallons less than 2004. The Rock Creek Plant supplied 31% of Corvallis drinking water (824 million gallons), and the Taylor Plant supplied the remaining 69% (about 1.86 billion gallons). The Rock Creek Treatment Plant can supply approximately 3 million gallons per day (MGD). The Taylor Treatment Plant can supply up to 21 MGD.

The Rock Creek Plant runs 24 hours-a-day, 364 days-a-year and generally shuts down one day per year to clean the sedimentation basins. The Taylor Plant is a peaking plant; the Taylor Plant runs long enough to meet the water demand that Rock Creek can not supply. The Taylor Plant operates daily until storage reservoirs located throughout the community reach the desired levels.

## Water Treatment

Both the Rock Creek and the Taylor Plants are known as conventional water treatment facilities. All water from the Rock Creek Watershed and the Willamette River undergoes the same four-step treatment process.

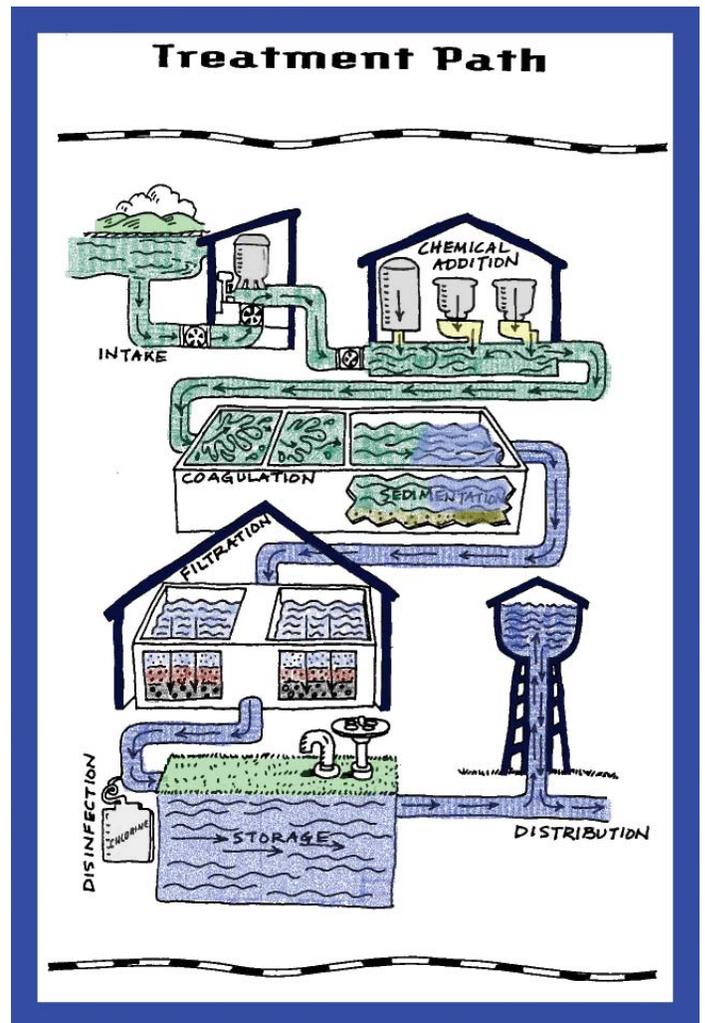
First, untreated (raw) water enters the treatment plant. Aluminum sulfate (alum) is added to make impurities clump together (coagulate) into larger particles called floc. A soda ash addition adjusts the pH and raise alkalinity to the ideal range for treatment. The water is stirred gently to encourage larger floc particles to form.

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

Next, the water enters large settling tanks called sedimentation basins. Floc particles are heavier than water, so they settle to the bottom (flocculate) where they can be removed.

Clarified water is then filtered as it passes through approximately three feet of layered media including carbon, sand, and garnet. These materials physically trap any remaining small particles in the water, and the carbon also adsorbs many chemical contaminants.

*continued on page 3*



**Save water and money;  
Identify and repair leaks  
in the water systems at  
your home and office!**

# Water Treatment

*(continued from previous page)*

The Rock Creek Plant uses anthracite as a carbon source. Upgrades to the Taylor Plant switched half of the filters from anthracite to granular activated carbon (GAC). Activated carbon is more effective at removing chemical contaminants from water than anthracite. The remaining four filters at Taylor will be upgraded from anthracite to GAC by June, 2008.

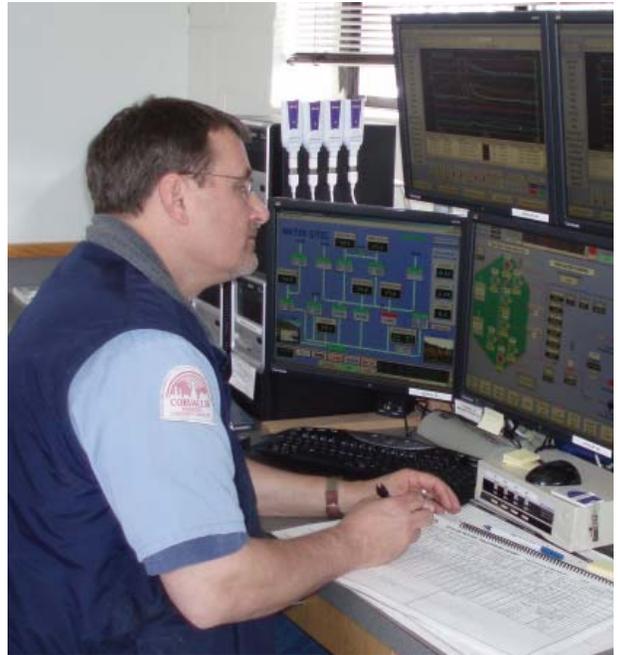
A small amount of chlorine is added to the water to kill harmful microorganisms and to keep it safe in the distribution system as it travels to your tap. Once it has been disinfected, the water is called finished water. Fluoride is added to the finished water to help prevent tooth decay, and soda ash is added to adjust pH for corrosion control in the distribution system pipes that bring water to you.

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

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

## **A Note for People With Special Health Concerns:**

*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).*



**Plant operator John Kelker monitors the water treatment process to assure quality**



**Clean, clear, delicious drinking water**

# Water Distribution & Storage

Finished water from both treatment plants is combined in the distribution system, which consists of about 244 miles of water pipes, 6,995 control valves, eight covered storage reservoirs, and ten pumping stations. The reservoirs and piping system are interconnected with both water sources, so customers generally receive a blend of water from both water treatment plants.

The Rock Creek and Taylor Water Treatment Plants produce water at a fairly constant rate, but demand for water can fluctuate from day to day and from hour to hour. In order to ensure there is enough water available for everyone's needs and to provide for fire protection, the eight covered reservoirs located throughout the city store up to 23 million gallons of finished water.

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



If only our water infrastructure could talk to us. The pipes running below our streets might remind us that they carry the very lifeblood of our community. Tap water keeps us healthy, fights fires, supports our economy and provides us with the high quality of life we enjoy.

We are all stewards of the water infrastructure generations before handed down to us, and our water bills keep that system strong and reliable.



Presented in cooperation with



The ten pumping stations have equipment to pump finished water to the higher elevation storage tanks where it flows by gravity to about 15,370 homes and businesses as needed. Pumps also provide water pressure to a few areas not served by gravity flow from reservoirs.

Water system operators monitor the water levels in the storage 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 to check for structural integrity.

Firefighters and crews that flush water lines access the system through 2,030 fire hydrants.

Through 2006, the City of Corvallis hired professional leak detection contractors each year to inspect a portion of the water system for leaks using sophisticated listening equipment. During April and May 2006, inspectors surveyed over 80 miles of water pipe. The survey uncovered 2 larger leaks totalling 10 gallons per minute. All leaks found were promptly repaired by city staff. The survey also discovered and closed five leaking fire hydrant valves. Future surveys will be performed by city crews using City equipment.

# 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 32 sampling stations in the distribution system and from the eight reservoirs. Routine sampling lets the staff check to 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 Lab Director Debbie Schaller collects a sample from the distribution system**



**City crews flush water lines through fire hydrants 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 storm drains discharge directly into Corvallis' urban streams.

## Microbiological Testing of Corvallis Drinking Water

The City of Corvallis tests for microbiological contamination not only within the water distribution system, but also in the raw water sources that supply the water treatment plants. During 2006, city staff collected 792 samples from the distribution system pipes and over 100 samples from reservoirs. Laboratory analysts tested the samples for total coliform bacteria and *E. coli* and did not detect either organism in the finished water supply.

The City also tested water from the Willamette River and from the three creeks that supply water to the Rock Creek Water Treatment Plant for *Giardia lamblia* and *Cryptosporidium*. This monitoring indicates the presence of *Giardia* in the Willamette River (not the finished water supply to your home or business) in very low concentrations. The City of Corvallis water treatment plants are designed to remove contaminants such as *Giardia* and *Cryptosporidium*. Neither *Giardia* or *Cryptosporidium* has ever been detected in water leaving the treatment plants. We encourage immunocompromised people to speak with their doctor about appropriate precautions. Any *Giardia lamblia* in the raw water sources are removed by filtration, and even if they were not, the chlorination process would kill them.

# WATER CONSERVATION

Water conservation can help your household budget; if you use less water, your utility bill will be lower. Water conservation is good for society since water is our most valuable natural resource. Water conservation helps the City and all citizens; if less water must be treated, costly infrastructure expansions and improvements to treatment, storage, and distribution facilities may be deferred.



support fish and other aquatic organisms and their habitats. This is not only good for aquatic organisms, but is a benefit for humans who want to recreate in the river. Even in the winter, when water seems to be everywhere in the Willamette Valley, conservation is a good idea. All the water that comes from your tap was treated to make it safe for consumption, and the water that goes down your drain is treated again at the wastewater reclamation plant prior to discharge back to the Willamette River. Even if you don't actually put the water to some use, it still gets treated twice. By reducing water use, you can help reduce the chemicals and energy used to run the water and wastewater treatment facilities.

Water conservation during the summer irrigation season is especially important, as that is when there is the least water available in the river. Every gallon of water you save is one less gallon that has to be taken from the river. Every gallon of water we leave in the river is available to

**Take the Water Conservation Challenge; how many ways can YOU conserve water? Here are some suggestions of ways to get started:**

## Indoor Water Conservation

Fix water leaks. A small drip from a faucet can leak over 1,500 gallons per month. Toilets can leak hundreds of gallons per day silently. To test your toilet for leaks, put dye tablets or food coloring in the tank, and if the color gets to the bowl without flushing the toilet, you have a leak.



Never use your toilet as a trash can. Replace older toilets with modern, efficient toilets that use 1.6 gallons per flush or less. Newer "High Efficiency Toilets" (HETs) use 1.28 gallons per flush or less.

Run dishwasher or washing machine only when you have a full load. Purchase a water-efficient washer.



If you like chilled water, keep a pitcher in the refrigerator instead of running the faucet until the water is cold.

Install faucet aerators to limit the flow to no more than 1.5 gallons per minute (gpm) for bathroom faucets and 2.2 gpm for kitchen faucets and showerheads.

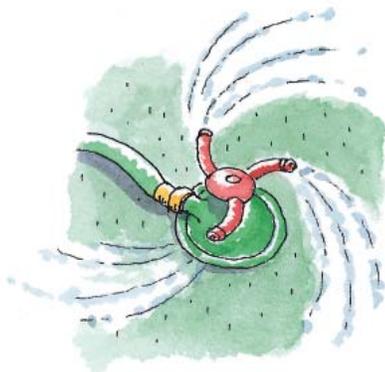


Call Corvallis Public Works at 766-6916 for a residential water audit. This free service will help you identify ways you can save water, and can provide you with a selection of water-conserving fixtures, if needed, for your home. Water conservation staff can also help your business identify ways to save water.

# Outdoor Water Conservation

Never use a hose to clean a sidewalk or driveway; a broom works just as well.

Weather conditions vary through the year; your landscape needs a different amount of water each week. Find out how much by calling the Corvallis Conservation Hotline at 766-6733. Suggested irrigation amounts are updated weekly from May to September.



Find out how much water your irrigation system (underground system or just a hose and sprinkler) applies. Put some straight-sided cans in your landscape. Run your watering system for 15 minutes and measure the depth of water in each can and find the average. Multiply this number by four to convert to inches per hour. Once you know the application rate, you can run your irrigation only long enough to satisfy the needs of your landscape (find out by calling 766-6733). Any more is waste.

Irrigate either late at night or early in the morning to maximize the amount of water that goes into the soil and to minimize the water lost through evaporation or blown away by the wind.

One of the best times to conserve water is when you plan your landscape; group plants by water needs so you do not have drought-tolerant and water-thirsty plants together. Water each group only based on how much water they need.

Soils absorb water more slowly than most irrigation systems apply it. This can be true especially if you have clay soil and/or if you live on a slope. Break up your irrigation session into short cycles. This can maximize the amount of water that enters the soil and minimize the water running off the landscape. Runoff not only wastes water, but can pollute our urban streams by carrying away fertilizers and pesticides you may have applied.

If you see fine mist from your irrigation system, the pressure is probably too high. Misting can result in the water evaporating before it reaches the ground and make it easier for wind to blow the water away from where you are trying to apply it.

If you wash your car, do it on the lawn to give the lawn a drink and to keep pollutants out of storm drains and ultimately urban streams. Be sure to use a bucket for washing, and use a shut-off nozzle on the end of your hose to avoid water waste!



## Water System Safety and Security

Corvallis completed a water system security and vulnerability assessment in 2003. The City installed additional fencing and surveillance cameras to limit access and to monitor activity around critical parts of the water system infrastructure. Additional measures will be implemented over the next several years. For security purposes, the 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 Corvallis water supply. It would take large amounts of a contaminant to threaten the safety of a water system. The water treatment plants would deactivate many contaminants if they were introduced to a raw water source and, in many cases, remove the immediate threat to public health. In 2004 the City completed an Emergency Operations Plan to guide the response not only to terrorist threats, but also to earthquakes, fire, or extreme weather events.

# Water Treatment Plants: Detected Levels of Primary Standards

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

**NOTE: Test results from different sites or times are averaged; some values in the range may be higher than the maximum reported value.**

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 <sup>1</sup>	TT = 95% of samples < 0.5 NTU	N/A	0.05 NTU	0.02 - 0.08 NTU	Soil runoff and stream sediment	Yes
			0.04 NTU	0.02 - 0.16 NTU		
Fluoride <sup>2</sup>	4 ppm	4 ppm	1.06 ppm	0.29 - 1.17 ppm	Added to promote dental health	Yes
			1.12 ppm	0.41 - 1.40 ppm		
TOC, Raw Water	TT = 4 ppm	N/A	1.89 ppm	1.44 - 2.57 ppm	Naturally occurring carbon, often from leaves or other organics	Yes
TOC, Finished Water	TT = 2 ppm	N/A	0.92 ppm	0.71 - 1.29 ppm		Yes
			0.53 ppm	0.50 - 0.61 ppm		
Nitrate <sup>3</sup>	10 ppm	10 ppm	0.10 ppm	N/A	Fertilizer; septic tanks; sewage; erosion	Yes
Sodium	20 ppm	N/A	10.5 ppm	N/A	Chlorination with Sodium Hypochlorite	Yes
			6.98 ppm	N/A		
Alpha Particles	15 pCi/L	Zero	0.18 pCi/L	N/A	Erosion of natural deposits	Yes
			0.17 pCi/L	N/A		Yes
Radium 226 & 228	5 pCi/L	Zero	0.89 pCi/L	N/A	Erosion of natural deposits	Yes
			1.11 pCi/L	N/A		Yes
Combined Uranium	30 ppb	Zero	0.01 ppb	N/A	Erosion of natural deposits	Yes
			0.01 ppb	N/A		Yes

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 routinely 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. The U.S. Public Health Service recommends a fluoride concentration of 0.7 to 1.2 ppm in drinking water.

3. Nitrate was NOT DETECTED from water produced at the Rock Creek Water Treatment Plant.



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

# Water Distribution System: Detected Levels of Primary Standards

(see glossary of abbreviations and definitions on page 11 )

**NOTE: Test results from different sites or times are averaged; some values in the range may be higher than the maximum reported value.**

Parameter	MCL	MCLG	Maximum Reported	Range	Likely Source	Meets Regs?
Total Trihalo-methanes <sup>4</sup>	80 ppb	0 ppb	Baldy Reservoir (Rock Creek water): 9.6 ppb	5.8 - 12.0 ppb	By-products of disinfection process	Yes
			North Hills Reservoir (Willamette water): 19.9 ppb	18.3 - 22.1 ppb		
Haloacetic Acids <sup>4</sup>	60 ppb	N/A	Baldy Reservoir (Rock Creek water): 12.8 ppb	8.7 - 16.7 ppb	By-products of disinfection process	Yes
			North Hills Reservoir (Willamette water): 20.4 ppb	17.8 - 24.8 ppb		
Copper <sup>5</sup>	Action level: 90% of homes tested have less than 1.3 ppm	1.3 ppm	90% of homes tested had less than 0.328 ppm	No homes tested were above 1.3 ppm	Corrosion of household plumbing	Yes
Lead <sup>5</sup>	Action level: 90% of homes tested have less than 15 ppb	0 ppb	90% of homes tested had less than 3 ppb	One home tested was above 15 ppb	Corrosion of household plumbing	Yes

4. This test is performed on a quarterly basis at both Baldy Reservoir and North Hills Reservoir.

5. **Lead and copper have never been detected in the City's raw water sources**, but they were used in household plumbing fixtures for many years. Some water pipes are still made from copper, but Congress banned lead solder, pipes, and fittings in 1986. Water in your home's water pipes can react with metals in the pipes and fixtures, particularly when water sits in pipes for more than a few hours. When lead or copper reaches the action level in ten percent of the homes sampled, the water provider must begin certain water treatment steps. This test is required once every three years. Testing was performed in 2005.

## Detected Levels of Secondary Standards

Parameter	MCL (non-enforceable)	Taylor Plant Reported	Rock Creek Plant Reported
Calcium	none	4.40 ppm	7.79 ppm
Chloride	250 ppm	4.0 ppm	5.0 ppm
Corrosivity <sup>6</sup>	non-corrosive	-2.89 SI	-2.49 SI
<i>Giardia</i> <sup>7</sup>	no established limit	< 0.2 cysts per 100 liters	none detected
Hardness	250 ppm	19 ppm	31 ppm
pH	6.5 - 8.5 pH units	7.1 - 7.2 pH units	7.0 - 7.2 pH units
Total Dissolved Solids	500 ppm	54.0 ppm	50.0 ppm
Sulfate	250 ppm	13 ppm	7.7 ppm

6. Corrosivity is a property of water that causes it to gradually dissolve or wear away certain materials. Based on the results of this test, Corvallis water tends to be slightly corrosive.

7. Results are from raw water samples collected BEFORE water treatment. Data are required as part of the new EPA regulations called Stage 2 Long Term Enhanced Surface Water Treatment Rule (LT2). Although *Giardia* data is not required for compliance purposes, the information is reported. No *Giardia* were found in treated water delivered to your tap.

**The following substances were tested for but 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  
 BHX-gamma Lindane  
 Carbofuran  
 Chlordane  
 Dalapon  
 Dibromochloropropane (DBCP)  
 Dinoseb  
 Dioxin <sup>8</sup>  
 Diquat  
 Endothall  
 Endrin  
 Ethylene dibromide (EDB)  
 Glyphosate  
 Heptachlor epoxide  
 Heptachlor  
 Hexachlorobenzene  
 Hexachlorocyclopentadiene  
 Methoxychlor  
 Pentachlorophenol  
 Bis (2-ethylhexyl) phthalate  
 Picloram  
 Polychlorinated biphenyls (PCBs)  
 Simazine  
 Toxaphene  
 Vydate (Oxamyl)  
 3-Hydroxycarbofuran  
 Aldicarb  
 Aldicarb sulfoxide  
 Aldicarb sulfone  
 Aldrin  
 Butachlor  
 Carbaryl  
 Dicamba

Dieldrin  
 Methomyl  
 Metolachlor  
 Metribuzin  
 Propachlor  
 Perchlorate <sup>9</sup>  
 DCPA-mono+di acid <sup>9</sup>  
 Methyl tertiary butyl ether (MTBE) <sup>9</sup>  
 Nitrobenzene <sup>9</sup>  
 2,4-Dinitrotoluene <sup>9</sup>  
 2,6-Dinitrotoluene <sup>9</sup>  
 Acetochlor <sup>9</sup>  
 4,4'-DDE <sup>9</sup>  
 EPTC 7  
 Molinate <sup>9</sup>  
 Terbacil <sup>9</sup>

**Inorganic Chemicals**

Aluminum  
 Antimony  
 Arsenic  
 Asbestos <sup>10</sup>  
 Barium  
 Beryllium  
 Cadmium  
 Chromium  
 Color  
 Cyanide  
 Iron  
 Manganese  
 Mercury  
 MBAs (detergents) <sup>9</sup>  
 Nickel  
 Nitrite as N  
 Nitrate + Nitrite as N  
 Selenium  
 Silver  
 Thallium  
 Zinc

**Volatile Organic Chemicals**

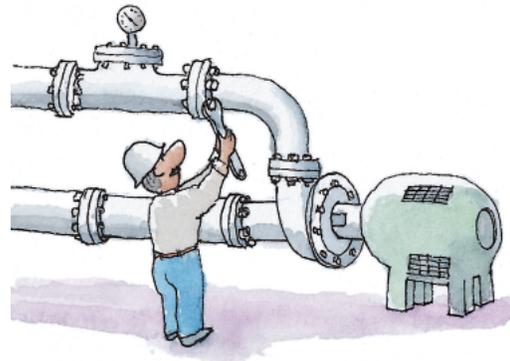
1,1-Dichloroethylene  
 1,1,1-Trichloroethane  
 1,1,2-Trichloroethane  
 1,2-Dichloroethane  
 1,2-Dichloropropane  
 1,2,4-Trichlorobenzene  
 1,2-Dichlorobenzene  
 1,4-Dichlorobenzene  
 Benzene  
 Carbon Tetrachloride  
 Chlorobenzene  
 Cis-1,2 Dichloroethylene  
 Ethylbenzene  
 Methylene chloride  
 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 Dichlorethane  
 Dibromomethane  
 Cis-1,3 Dichloropropene  
 Trans 1,3 Dichloropropene  
 1,3 Dichloropropane  
 1,1,1,2 Tetrachloroethane  
 1,1,2,2 Tetrachlorethane  
 1,2,3 Trichloropropane  
 Bromobenzene  
 2 Chlorotoluene  
 4 Chlorotoluene  
 1,3 Dichlorobenzene



**Microbiological**

*E. coli* bacteria  
 Total *Coliform* bacteria



8. 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 2004. In 2000 the City of Corvallis began testing voluntarily for dioxin twice every year, and dioxin has not been detected in any samples.

9. The City of Corvallis tested for a group of chemicals in 2002 as part of the EPA Unregulated Contaminant Monitoring Rule (UCMR). The UCMR required water providers to test for certain chemicals to help determine if they should be regulated in the future. None of the candidate chemicals were detected in Corvallis water.

10. A waiver has been granted by the Oregon Department of Human Services Drinking Water Program 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.

# Glossary of Abbreviations and Definitions

Action Level	The concentration of a contaminant which, if exceeded, triggers a treatment technique or other requirement which a water system must follow.
<i>Crypto-sporidium</i>	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.
<i>E. coli</i> bacteria	<i>Escherichia coli</i> are bacteria whose presence indicates that the water may be contaminated with human or animal wastes.
<i>Giardia</i>	<i>Giardia lamblia</i> 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, <i>Giardia</i> 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 ppm = soft; 75-150 ppm = moderately hard; 150-300 ppm = hard; over 300 ppm = very hard. The Oregon Department of Human Services Drinking Water Program requires that hardness not exceed 240 ppm. Corvallis tap water is considered soft at 25 to 40 ppm.
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 <b>Turbidity</b> .
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 <i>caustics</i> .
ppb	Parts per billion. One ppb is roughly equivalent to 1 microgram per liter. A one part per billion 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.
ppm	Parts per million. One ppm is roughly equivalent to 1 milligram per liter. A one part per million 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.
SI	Saturation Index. This measure describes the corrosive property of 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.
Treatment Technique	A required process intended to reduce the level of a contaminant in drinking water. A treatment technique may be required by the 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 <b>NTU</b> .
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 Infrastructure: Serving Your Needs

I want to be here for you.

If only our water infrastructure could talk to us. The corner hydrant might remind us that only tap water protects us against the threat of fire, and that the pipes below our streets need constant attention to keep life-saving water flowing at the right pressure, 24/7, without fail.

We are all stewards of the water infrastructure generations before handed down to us, and our water bills keep that system strong and reliable.



Only Tap Water Delivers

Presented in cooperation with



Rock Creek Water Treatment Plant



Water infrastructure may be out of sight, but never out of mind. Here a City of Corvallis crew excavates to repair a broken pipe



H. D. Taylor Water Treatment Plant

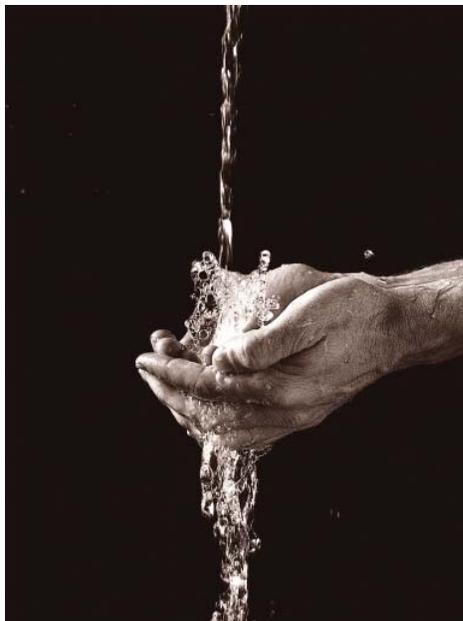
# Frequently Asked Questions

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

Laws require that water systems maintain a disinfectant residual throughout the distribution system. This assures that our drinking water remains safe until it comes out of the tap. Prior to 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.

Although many tests have shown that the amount of chlorine found in treated water is safe to drink, some people are sensitive to the smell and taste of chlorine. If you are, here are some suggestions: Fill a pitcher or bottle of water and keep it loosely capped; the chlorine will dissipate within a few hours. Because water is a perishable product, consider keeping your pitcher in the refrigerator. This will also let you have a cool glass of water without running the tap. Another way to dissipate chlorine is to pour water back and forth between two glasses or pitchers. This aeration will help the chlorine escape.

Point-of-use water filters (those that filter water at the tap where you use it) may make tap water more aesthetically pleasing. Filters, however, will not make your water safer. In fact, 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 to purchase 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.



***Should I drink bottled water?  
Is it safer than tap water?***

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 tap water.

Creating bottles also uses resources such as petroleum and energy. Even the disposal of bottles 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. You could get the news from

the radio, television, and newspapers as well as from the Benton County Environmental Health Department, the Oregon Department of Human Services 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 carbonation in 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 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 in the Corvallis water supply?***

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

Lead contamination is rarely found in rivers, wells or reservoirs. Lead has never been detected in the water supply for Corvallis or in the distribution system.

How does lead get into water? If standing water is in contact with lead materials for several hours, some lead may leach into the water and potentially may become a health concern. The most common sources of lead in a home’s drinking water are lead-based solder in joints of older copper pipe, faucets made of brass or chrome-plated brass, and in some cases, water service lines. Note that there are no lead water service lines in Corvallis.

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. 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 from their website: <http://oregon.gov/DHS/ph/orelap/docs/acclab.pdf>.

***I was told not to put a brick in my old toilet tank to save water. Why not?***

Toilets constitute the largest indoor use of water (about 27% of all indoor use). Modern toilets use no more than 1.6 gallons per flush; installing one will reduce toilet flushing to about 18% of indoor water use. You can put something in an older toilet's tank that takes up space, like a toilet dam, a water-filled jug, or other displacement device to reduce flush volumes, sometimes by a gallon per flush. Early-closing flappers can also reduce the amount of water used to flush. Putting a brick in the tank is a bad idea. Bricks tend to disintegrate when left underwater, and the brick fragments can damage your toilet. Contact Public Works at 766-6916 for more information on toilet displacement devices and early-close flappers. We have a limited number available free to our customers. To save the most water, consider upgrading to a modern toilet. The City of Corvallis currently offers a rebate of up to \$75 if you replace your old toilet with one of a selection of approved efficient models. For more information, visit the city's website ([www.ci.corvallis.or.us](http://www.ci.corvallis.or.us)) and search for **toilet rebate**.



***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, the daylight hours lengthen, plants begin to 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 766-6733 to see how much water you should apply each week. If you have an irrigation controller, reset it at least once per month 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.

Corvallis Public Works  
 PO Box 1083  
 Corvallis OR 97339-1083

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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
- If there are contaminants in your drinking water
- Ways you can 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 .....	(800) 426-4791
Oregon Department of Human Services Drinking Water Program (DHS-DWP) .....	(971) 673-0405

WATER is essential to ALL life.



Don't waste a drop!