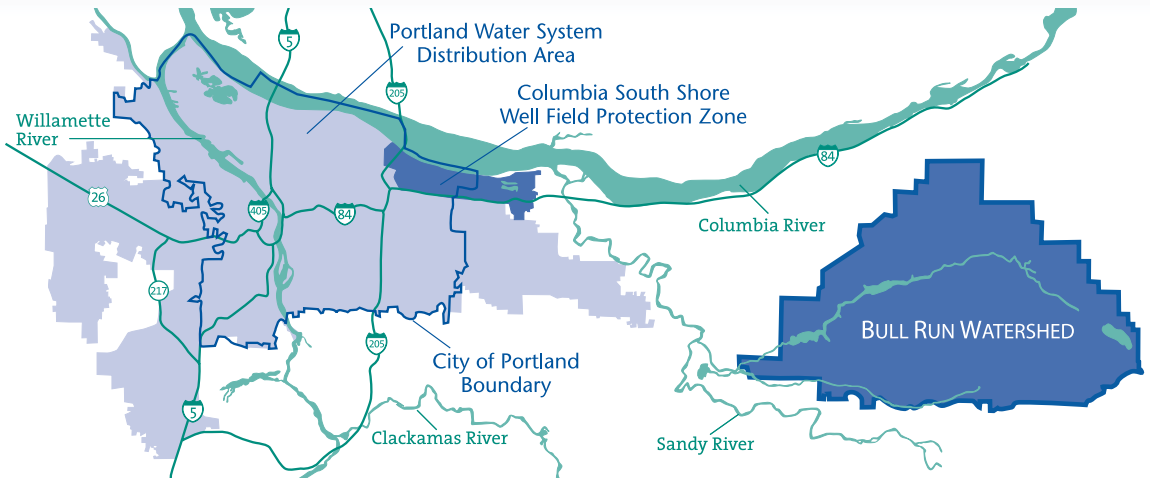
Drinking Water Quality Report

Mailed June, 2006

- **From Commissioner Leonard**
  "From forest to faucet, Portland delivers the best drinking water in the world."
- **The Bull Run Watershed**
  "... 80-170 inches of rainfall a year."
- **Portland's Drinking Water Quality**
  "... continues to meet all state and federal regulations."

Portland's Water Sources



THE BULL RUN WATERSHED

The Bull Run Watershed is a surface water supply located in the Mt. Hood National Forest. A geological ridge separates the watershed from Mt. Hood. Current regulations allow Portland to meet federal drinking water standards without filtering this high quality water supply. The watershed has an area of 102 square miles, and typically receives 80-170 inches of rainfall a year. The heaviest rains occur from late fall through spring. Two reservoirs store water for use year-round, particularly during the dry summer months.

The watershed is reserved solely for producing drinking water. Federal laws restrict human entry. No recreational, residential, or industrial uses occur within its boundaries. The Portland Water Bureau carefully monitors water quality and quantity. The Oregon Department of Human Services - Drinking Water Program regularly inspects the watershed and related treatment and distribution facilities.

The Water Bureau has completed a Source Water Assessment for the Bull Run water supply to comply with the 1996 Safe Drinking Water Act amendments. The only known contaminants of concern for the Bull Run water supply are naturally occurring microbial contaminants such as *Giardia lamblia, Cryptosporidium,* fecal coliform bacteria, and total coliform bacteria. These organisms are found in virtually all freshwater ecosystems and are present in the Bull Run supply at very low levels. The Bull Run supply complies with all applicable state and federal regulations for source water, including the 1989 Surface Water Treatment Rule filtration-avoidance criteria. The Source Water Assessment report is available at www.portlandonline.com/water and by calling 503-823-7404.

COLUMBIA SOUTH SHORE WELL FIELD

The Columbia South Shore Well Field provides high quality water from production wells located in four different aquifers. The City did not use the well field for drinking water in 2005.

Portland actively protects its drinking water wells and manages programs to prevent groundwater pollution. Details about Portland's wellhead protection program are available at www.portlandonline.com/water/groundwater and by calling 503-823-7404.

The City of Lake Oswego, the Rockwood Water People's Utility District and the Sunrise Water Authority provide drinking water for some Portland customers who live near service area boundaries. Customers who receive water from these sources will also receive a detailed water quality report about these sources in addition to this report.

www.portlandonline.com/water

Letter From the Commissioner

From forest to faucet, Portland delivers the best drinking water in the world.

I am pleased to share the annual monitoring results for Portland's drinking water system. It is important that the city's drinking water customers know that they, their families and businesses receive high quality drinking water.

Portland protects this water supply through monitoring, treatment, investment and long-term planning. Working with citizens, the city implements programs and projects that maintain the Portland drinking water system and strengthen it.

The Bull Run water source and backup groundwater facilities are some of Portland's most valuable resources. Protecting these essential resources and maintaining the water system are vital public services – and top priorities for the Water Bureau. The City of Portland is committed to continuing to provide the best drinking water in the world.

Randy Leonard
Commissioner-In-Charge

Annual Water Quality Report

If this information looks familiar, it should.

The city has mailed similar information to customers each year since 1997. Why every year? Drinking water regulations require the city to produce and mail this information every year.

Most of the language is also required – Congress and the EPA want to be sure people know what is in their drinking water.

The city agrees. So the Portland Water Bureau takes the effort to make this complex information readable at a low cost.

The Water Bureau produced and mailed this report for 29 cents each.

Drinking Water Quality Report

The Water Bureau monitors for approximately 200 regulated and unregulated contaminants in drinking water.

Letter From the Administrator

The most important information contained in the report is that Portland's drinking water quality continues to meet all state and federal regulations.

If you have further questions or comments about this report, please call City of Portland Utilities Customer Services at 503-823-7770. We welcome your interest in Portland's water system.

David G. Shaff
Interim Administrator

Frequently Asked Questions

▶ Is my water treated by filtration?

No, Bull Run is currently not filtered. The Bull Run source meets the filtration avoidance criteria of the Surface Water Treatment Rule. The state approved Portland's compliance with these criteria in 1992.

▶ Does Portland add fluoride to drinking water?

Portland does not add fluoride to the water. No fluoride is detected in Bull Run water, but it is a naturally occurring trace element in groundwater. The US Public Health Service and the Centers for Disease Control and Prevention (CDC) consider the fluoride levels in Portland's water sources to be lower than optimal for helping to prevent dental decay. You may want to consult with your dentist about fluoride treatment to help prevent tooth decay, especially for young children.

▶ Is Portland's water soft or hard?

Portland's water is very soft. Hardness of Bull Run water is typically 6-11 parts per million (approximately ½ a grain of hardness per gallon). Portland's groundwater hardness is approximately 86 parts per million (about 5 grains per gallon), which is considered moderately hard.

▶ What is the pH of Portland's water?

In the distribution system, pH typically ranges from 7.2 to 8.2.

▶ Are sodium levels in Portland's drinking water affecting my health?

There is currently no drinking water standard for sodium. Sodium is an essential nutrient. Sodium in Portland's water ranges between 2 and 10 ppm, a level unlikely to significantly contribute to adverse health effects.

▶ How can I get my water tested?

Call the LeadLine at 503-988-4000 for information about free lead in water testing. For more extensive testing, private laboratories can test your tap water for a fee. Not all labs are accredited to test for all contaminants. For information about accredited labs, call the Oregon Department of Human Services, Oregon Environmental Laboratory Accreditation Program at 503-229-5505.

www.leadline.org

Drinking Water Treatment

The Water Bureau treats Portland's water with chloramination. This process starts with chlorine to disinfect the water. Next the city adds ammonia to ensure that disinfection remains adequate throughout the distribution system.

The city also adds sodium hydroxide to increase the pH of the water to reduce corrosion of plumbing systems. This treatment helps control lead and copper levels at customers' taps should these metals be present in the customers' home plumbing.

Water sampling in Bull Run Watershed.

Water Testing

The Water Bureau monitors for approximately 200 regulated and unregulated contaminants in drinking water, including pesticides and radioactive contaminants. All monitoring data in this report are from 2005. ***If a health related contaminant is not listed in this report, the Water Bureau did not detect it in Portland's drinking water.***

Special Notice for Immuno-Compromised Persons

Some people may be more vulnerable to contaminants in drinking water than the general population.

Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. Environmental Protection Agency/ Centers for Disease Control and Prevention guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the **Safe Drinking Water Hotline at 800-426-4791.**

What the EPA says about Drinking Water Contaminants

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 (EPA) Safe Drinking Water Hotline at 800-426-4791 or at www.epa.gov/safewater/.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants in Drinking Water Sources May Include

- **Microbial contaminants,** such as viruses and bacteria, which may come from wildlife or septic systems.
- **Inorganic contaminants,** such as salts and metals, which can occur naturally or result from urban stormwater runoff, industrial or domestic wastewater discharges, or farming.
- **Pesticides and herbicides,** which may come from a variety of sources such as farming, urban stormwater runoff, and home or business use.
- **Organic chemical contaminants,** including synthetic and volatile organic chemicals, which are byproducts of industrial processes, and can also come from gas stations, urban stormwater runoff, and septic systems.
- **Radioactive contaminants,** which can occur naturally.

In order to ensure that tap water is safe to drink, EPA has regulations that limit the amount of certain contaminants in water provided by public water systems and require monitoring for these contaminants. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

www.epa.gov/safewater/

Public Involvement Opportunities

The Portland Water Bureau sponsors a variety of public involvement and public outreach opportunities connected to its many projects and programs. The bureau posts public meeting times online. If you have questions about Portland Water Bureau meetings, projects, or programs, please contact Jimmy Brown, Community Outreach, Public Information & Involvement Manager at 503-823-3028 or visit the Portland Water Bureau's website.

www.portlandonline.com/water

Mailed June, 2006

Regulated Contaminants detected in 2005

Regulated Contaminant	Minimum Detected	Maximum Detected	Maximum Contaminant Level (MCL) or Treatment Technique	Maximum Contaminant Level Goal (MCLG)	Sources of Contaminant
Source Water from Bull Run Watershed (before treatment)					
Turbidity	0.22 NTU	1.47 NTU	5 NTU	Not Applicable	Erosion of natural deposits
Giardia	Not Detected	1 sample of 50 liters had 5 cysts.	Treatment technique required: Disinfection to inactivate 99.9% of cysts	Not Applicable	Animal wastes
Total Coliform Bacteria	Not Detected	1 sample had 17 colonies. (100% of samples had 100 or fewer bacterial colonies per 100 milliliters of water.)	At least 90% of samples measured during the previous six months must have 100 or fewer bacterial colonies per 100 milliliters of water.	Not Applicable	Found throughout the environment
Fecal Coliform Bacteria	Not Detected	2 samples had 5 colonies each. (100% of samples had 20 or fewer bacterial colonies per 100 milliliters of water.)	At least 90% of samples measured during the previous six months must have 20 or fewer bacterial colonies per 100 milliliters of water.	Not Applicable	Animal wastes
Entry Points to Distribution System—from Bull Run and the groundwater well field					
Nutrients					
Nitrate Nitrogen	0.02 parts per million	0.06 parts per million	10 parts per million	10 parts per million	Erosion of natural deposits; animal wastes
Metals					
Barium	Not Detected	0.006 parts per million	2 parts per million	2 parts per million	Erosion of natural deposits
Selenium	Not Detected	2.0 parts per billion	50 parts per billion	50 parts per billion	
Distribution System of Reservoirs, Tanks and Mains					
Microbial Contaminants					
Total Coliform Bacteria	Not Detected	1 sample in August (0.25%) had detectable coliform bacteria.	Must not detect coliform bacteria in more than 5.0% of samples in any month	0% of samples with detectable coliform bacteria	Found throughout the environment
Disinfection Byproducts					
Total Trihalomethanes					
Running Annual Average of all sites	22 parts per billion	27 parts per billion	80 parts per billion.	Not Applicable	Byproduct of drinking water disinfection
Single result at any one site	Not Detected	53 parts per billion	Not Applicable		
Haloacetic Acids					
Running Annual Average of all sites	29 parts per billion	35 parts per billion	60 parts per billion	Not Applicable	Byproduct of drinking water disinfection
Single result at any one site	17 parts per billion	57 parts per billion	Not applicable		

Regulated Contaminant	Minimum Detected	Maximum Detected	Maximum Residual Disinfectant Level (MRDL)	Maximum Residual Disinfectant Level Goal (MRDLG)	Sources of Contaminant
Distribution System of Reservoirs, Tanks and Mains					
Total Chlorine Residual	0.1 parts per million	2.2 parts per million	4 parts per million	4 parts per million	Chlorine and ammonia are used to disinfect water.

Notes on Contaminants

Turbidity

Bull Run is an unfiltered surface water supply. Rules for public water systems have strict standards for unfiltered surface water supplies. Turbidity levels in unfiltered water must not exceed 5 NTU (Nephelometric Turbidity Units). The typical cause of turbidity is tiny particles of sediment in the water during storm events. During large storm events the Water Bureau may shut down the Bull Run system and serve water from the Columbia South Shore Well Field. Turbidity can interfere with disinfection and provide a medium for microbial growth.

Giardia

Wildlife in the watershed may be hosts to *Giardia lamblia,* the organism that causes giardiasis. Chlorine is effective in inactivating *Giardia.*

Total Coliform Bacteria

Coliform bacteria are naturally present in the environment. Their presence is an indicator that other potentially harmful bacteria may be present. The Water Bureau uses chlorine to control these bacteria. Total coliform samples are collected from both the source water and the distribution system.

Fecal Coliform

The presence of fecal coliform bacteria in source water indicates that water may be contaminated with animal wastes. The Water Bureau uses chlorine to control these bacteria.

Nitrate - Nitrogen

Nitrate can support microbial growth (bacteria and algae). Nitrate levels exceeding the standards can contribute to health problems.

Barium and Selenium

Metals are a group of similar elements that occur in the earth's crust. Metals (such as barium and selenium) can dissolve into water that is in contact with soil or in groundwater aquifers.

Disinfection Byproducts

During disinfection, certain byproducts form as a result of chemical reactions between chlorine and naturally occurring organic matter in the water. These byproducts can have negative health effects. The disinfection process is carefully controlled to remain effective, while keeping byproduct levels low. Monitoring in Portland's system detected Trihalomethanes and Haloacetic Acids, regulated disinfection byproducts.

Total Chlorine Residual

Chlorine residual is necessary to maintain disinfection throughout the distribution system. Adding ammonia to chlorine results in a more stable disinfectant and helps to minimize the formation of disinfection byproducts. Total chlorine residual is a measure of free chlorine and combined chlorine and ammonia in our distribution system.

Cryptosporidium

Cryptosporidium is a microorganism (protozoan) naturally present in bodies of surface water throughout the world. Surface water supplies are particularly vulnerable if they receive runoff or are exposed to human or animal wastes. Since wildlife inhabit the Bull Run watershed, the Water Bureau regularly monitors for *Cryptosporidium* and has done so for more than ten years. Occasionally, the Water Bureau finds *Cryptosporidium* at low levels. No *Cryptosporidium* oocysts were detected in water samples in 2005. The federal Environmental Protection Agency (EPA) has issued a drinking water rule establishing new national standards to further reduce the risks of illness from *Cryptosporidium*. These standards, as written, require additional treatment processes for unfiltered water systems such as Portland's by 2012. Because of the protected status of Portland's Bull Run source, and the very low incidence of *Cryptosporidium* in Bull Run source water, the city has filed a legal challenge to the new federal rule seeking to establish alternative and less expensive methods of compliance. The status of this legal challenge is unresolved at this time.

Symptoms of *Cryptosporidium* infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals are able to overcome the disease within a few weeks. However, immuno-compromised people have more difficulty and are at greater risk of developing severe, life threatening illness. *Cryptosporidium* must be ingested for it to cause disease, and may be spread through means other than drinking water.

www.epa.gov/safewater/crypto.html

Definitions

- **Maximum Contaminant Level Goal or MCLG**
  The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **Maximum Contaminant Level or 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 treatment technology.
- **Maximum Residual Disinfectant Level Goal or 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.
- **Maximum Residual Disinfectant Level or MRDL**
  The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **Treatment Technique**
  A required process intended to reduce the level of a contaminant in drinking water.
- **Action Level**
  The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **Part Per Million**
  One part per million corresponds to one penny in $10,000 or approximately one minute in two years. One part per million is equal to 1000 parts per billion.
- **Part Per Billion**
  One part per billion corresponds to one penny in $10,000,000 or approximately one minute in 2000 years.

Raleigh Water District
5010 S.W. Scholls Ferry Road
Portland, Oregon 97225
503-292-4894

About Your Drinking Water

Lead in Drinking Water

Easy steps to avoid possible exposure to lead from plumbing.

- **Never use water from the hot water tap for making baby formula.**
- **Use only cold, fresh water from the cold water tap for drinking or cooking.**
- **Avoid using water that has been standing in the pipes.** When a faucet is not used for more than six hours, run the cold water tap until the water feels noticeably colder (about 30 seconds to 2 minutes). This flushes standing water out of the pipes, replacing it with fresh water.
- **Use only lead-free solder when making plumbing repairs.**
- **Consider using a filter.** Check whether it reduces lead – not all filters do. Be sure to maintain and replace a filter in accordance with the manufacturer's instructions to protect water quality.
- **Look for faucets and filters which are NSF-certified to reduce contaminants.** For more information, contact NSF International at 877-867-3435 or at www.nsf.org.

LeadLine
503-988-4000

IMPORTANT INFORMATION IMPORTANT INFORMATION

Call the LeadLine at 503-988-4000 or visit www.leadline.org for information about lead hazards, free lead in water testing, free childhood blood lead testing and referrals to other lead reduction services.

www.leadline.org

IMPORTANT INFORMATION IMPORTANT INFORMATION

Lead in household plumbing.

Lead was not detected in Portland's water sources. Portland has removed all known lead service connections from its distribution system.

Exposure to lead through drinking water is possible if materials in a building's plumbing contain lead. The level of lead in water can increase when water stands in contact with lead-based solder and brass faucets containing lead.

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the LeadLine (503-988-4000).

People are exposed to lead in many ways. **In the Portland area, dust from paint in homes built before 1978 is the most common source of exposure to lead.** Other sources include soil, pottery, traditional folk medicines or cosmetics, some sports equipment such as fishing weights and ammunition, and some occupations and hobbies.

Corrosion Treatment

The Water Bureau's corrosion control treatment reduces corrosion in plumbing by increasing the pH of the water. Comparison of monitoring results with and without pH adjustment shows over 50 percent reduction in lead at the tap with pH adjustment.

Water Testing

Call the LeadLine for information about free lead in water testing. The program targets testing the water in households most at risk from lead in water, including pregnant women or children age six or younger who live in homes built between 1970 and 1985.

Lead and Copper Sampling at Residential Water Taps

90th Percentile Values	Number of Sites Exceeding Action Levels	Action Level*	Maximum Contaminant Level Goal (MCLG)	Source of Contaminant
Lead				
12 parts per billion	8 of 115 samples (7%) exceeded the Action Level of 15 parts per billion	Action Level exceeded if more than 10% of the homes tested have lead levels greater than 15 parts per billion	Zero parts per billion	Corrosion of household and commercial building plumbing systems
Copper				
0.35 parts per million	No samples exceeded the Action Level.	Action Level exceeded if more than 10% of the homes tested have copper levels greater than 1.3 parts per million	1.3 parts per million	Corrosion of household and commercial building plumbing systems

**Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.*

Contact Information
Portland Water Bureau
1120 SW Fifth Avenue
Portland, Oregon 97204
www.portlandonline.com/water
Public Water System
#4100657

City of Portland
Utilities Customer Services
503-823-7770
TTY 503-823-6868

For Additional Information
Oregon Department of Human Services — Drinking Water Program
971-673-0405
www.oregon.gov/DHS/ph/dwp/

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To obtain a copy of this report in alternate format, including Braille, please call 503-823-7770.

Spanish
Para obtener una copia de este reporte en español, por favor llame al **503-823-7770** o en el Internet vaya a www.portlandonline.com/water

Russian
Для получения копии данного отчета на русском языке, пожалуйста, позвоните по телефону **503-823-7770** или посетите веб-сайт www.portlandonline.com/water.

Vietnamese
Để đủợc một bản báo cáo bằng tiếng Việt, xin gọi số **503-823-7770** hoặc đến trang mạng tại www.portlandonline.com/water.