

2012 Annual Drinking Water Quality Report

The City of West Linn is pleased to provide you with the 2012 Drinking Water Quality Report based on data collected during the 2011 calendar year. This document conforms to Federal Environmental Protection Agency (EPA) regulations requiring water utilities to provide the following information annually. The Water we serve you is required to meet the water quality standards set by EPA.

Bottled water that you may otherwise purchase comes under different standards and requirements. Those companies are regulated by the Food and Drug Administration (FDA). These standards are not the same. Please be an informed consumer and check the sources and standards of your drinking water. 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 the water poses a health risk. More information about contaminants potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline at 1.800.426.4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The EPA and Centers for Disease Control and Prevention provide guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants and are

available from the Safe Drinking Water Hotline (800-426-4791). Please read this report carefully, and if you have questions, call the resource numbers supplied.



Drinking Water Sources

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 that may be present in source 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 byproducts 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.

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

The Source of Your Drinking Water

West Linn's surface drinking water comes from the Lower Clackamas River in Clackamas County, Oregon. The Clackamas River flows west from its headwaters on Ollalie Butte, just south of Mt. Hood, until it joins the Willamette River near Oregon City. The watershed covers almost 1,000 square miles, most of it located within Clackamas County. South Fork Water Board (SFWB) treats our water at the plant in Oregon City. SFWB is jointly owned by the City of West Linn and the City of Oregon City. West Linn also has an emergency only interconnection with Lake Oswego.

In compliance with the 1996 Amendments to the Safe Drinking Water Act, a source water assessment for SFWB was completed in late 2002. The delineated drinking water protection area is occupied by a wide variety of land uses: residential/municipal, agricultural/forest, and

We're here to help:

Questions about water quality?

Call 503-656-6081

commercial/industrial. A total of 1,127 potential contaminant sources were identified within this area that could, if improperly managed or released, impact the water quality in the watershed. In 2010, the Clackamas River Water Providers (CRWP) completed a Drinking Water Protection Plan for the Clackamas River. The purpose of this plan is to provide CRWP with a road map of potential strategies and programs to implement over the next decade and beyond, to preserve the Clackamas River as a high quality drinking water source. CRWP strives to keep water treatment requirement as low as possible, while ensuring optimum water quality for our communities. For more information about the programs CRWP is implementing, or to download a copy of the plan, go to www.clackamasproviders.org. The full copy of the Source Water Assessment is available at our office at West Linn Public Works, 4100 Norfolk St. West Linn, OR 97068

Some Potential Hazards Concerning Our Drinking Water

Backflow- What is it? Water normally flows in one direction, from the public water system through your cold or hot water plumbing to a sink tap or other plumbing fixture. The plumbing fixture is the end of the potable water system and the start of the waste disposal system. Under certain conditions water can flow in the reverse direction. This is known as backflow. Backflow occurs when a back-siphonage or backpressure condition is created in a water line. Back-siphonage may occur due to a loss of pressure in the water distribution system during a high withdrawal of water for fire protection or water main flushing, a water main or plumbing system break or a shutdown of a main for repair. A reduction of pressure below atmospheric pressure creates a vacuum in the piping. If a cross connection is present, such as a hose submerged in a wading pool during this vacuum condition, the non-potable water in the pool would be siphoned into the house plumbing then back into the public water

system. The hydraulic condition known as back-siphonage and the resulting backflow of water is why we need for customers to have their backflow prevention devices on their fire or lawn irrigation systems tested each year. The backflow prevention device will help to assure the safety of our drinking water, but it may also affect your plumbing system.

Thermal Expansion- What is it? The water within your plumbing system expands every time the water heater begins its heating cycle. The temperature and pressure in the water heater is reduced when hot water is withdrawn from a faucet and cold water enters the tank. The increase in pressure from thermal expansion can also be reduced by water flowing back into the public water system. However, when a *check valve, pressure-reducing valve or backflow prevention device* is installed in the service pipe, a “closed system” is created. Protection from thermal expansion is provided in all hot water heaters by the temperature and pressure relief valve (T&P Valve) at the top of the tank.

If the thermostat in a hot water heater becomes defective and allows the water temperature to increase to more than 212° F and the T&P valve fails, your domestic water can become “superheated”. Superheated water can cause water heaters to explode or can allow scalding steam to be released from faucets upon personal use. Your water heater manufacturer recommends that the T&P valve be operated annually and replaced or inspected at least once every three years. A licensed plumber can inspect, repair, or replace the T&P valve to ensure your safety and assist you with other methods of protection such as a thermal expansion tank, toilet tank stop or a relief valve.

Water Quality Information

The results of tests performed in 2011 are presented on the following water quality tables. The City of West Linn

and SFWB Treatment Plant routinely monitor for contaminants in your drinking water as required by Federal and State laws. Only contaminants found to be present in the drinking water are listed in the following tables. Your drinking water is tested for more than 90 other contaminants. If you would like to see all the chemicals and results, please visit <http://170.104063.9/> then type in West Linn’s public water system identification number (4100944) where it says [click here](#). The South Fork Water Board water system identification number is 4100591.

Compliance with the Lead and Copper Rule

In 1992, Oregon City, West Linn and Clackamas River Water South, (CRW), began monitoring for lead and copper as a single entity for compliance with the Lead and Copper Rule requirements. This cooperative Joint Monitoring Plan was approved by EPA and the Oregon Department of Human Service - Drinking Water Program based on the fact that each service area received water from a “single source”, the Clackamas River. In 2007, CRW began blending water from the Clackamas River (surface water), which was treated at the SFWB Treatment Plant, with well water (ground water) in a portion of their service area. As this no longer constituted a “single source”, the decision was made to revisit how Oregon City and West Linn would comply with the Lead and Copper Rule requirements. In January of 2009, Oregon City and West Linn Water Quality Staff each were able to locate the required number of sample sites (60) and no longer would use the sample sites at Clackamas River Water South. These sample sites are designated “Tier 1” by EPA and are homes that were built between 1983 and 1986 and installed with copper piping using lead-based solder. We thank our “Tier 1” customers for their assistance with this important program!

Important Information about Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of West Linn is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for thirty seconds to two minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested.

The City of West Linn is not set up to test water since we are not a water testing laboratory. To get a list of accredited labs, visit the Oregon Health Authority's Drinking Water Program website. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available at: www.epa.gov/safewater/lead.

Key to Table Definitions:

In the table on the next page you will find many terms and abbreviations with which you might not be familiar. To help you better understand we've provided the following definitions:

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

Contaminant: Any physical, chemical, biological, or radiological substance or matter in water that creates a health hazard.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water, below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL): The highest level of a



disinfectant allowed in drinking water. There is convincing evidence that the addition of a disinfectant is necessary for the control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.

Non-Detects (ND): Laboratory analysis indicates that the contaminant is not present or that it is present at levels too low for modern laboratory equipment to detect.

Non-Regulated Contaminant: These have guidelines set to assure good aesthetic quality and they identify levels of substances that may affect taste, odor or color of water.

Parts per million (ppm) or Milligrams per liter (mg/L): One ppm is comparable to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) or Micrograms per liter (mcg/L): One ppb is comparable to one second in 32 years, or one minute in 2000 years, a single penny in \$10,000,000 or the first 16 inches on a trip to the moon.

Range: The lowest to the highest values for all samples tested for each contaminant. (This value is listed only where applicable.)

Regulated Contaminant: These are regulated by law to protect public health. The law specifies maximum contaminant levels allowed in drinking water.

Secondary Maximum Contamination Level (SMCL): The level of a secondary contaminant which when exceeded may adversely affect the aesthetic quality of the water which thereby may deter public acceptance of it or may interfere with water treatment methods.

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

Water Quality Data

Disinfectant Residual, Disinfection By-Products, and By-Product Precursors

Contaminant Name	Sample Date	Units	MCL (MRDL)	MCLG (MRDLG)	Running Annual Avg.	Range	Violation?	Major Sources
TTHMs ¹	Quarterly 2011	ppb	80 ppb	N/A	35.5	29.0 – 45.5	No	By-product of drinking water chlorina-
HAA5 (5 halo acetic acids)	Quarterly 2011	ppb	60 ppb	N/A	35.6	28.1 – 42.6	No	By-product of drinking water chlorina-
Chlorine	Daily; plus 30 samples taken monthly	ppm	4	4	0.79	.35 - 1.21	No	Water additive used to control microbes
Total Organic Carbon - Raw H2O ²	2011	ppm	---	TT	1.15	.82 – 1.61	No	Naturally present in the environment
Total Organic Carbon - Finished Water ²	2011	ppm	---	TT	0.58	ND - .91	No	Naturally present in the environment

¹Total Trihalomethanes (TTHMs) and Haloacetic Acids (HAA5) are produced by a chemical reaction between chlorine and organic matter in the water. Optimizing disinfection in drinking water minimizes the production of these two disinfection by-products.

²Total Organic Carbon has no health effects; however TOC provides a medium for the formation of disinfection by-products.

Microbiological Contaminants

Turbidity	Sample Date	Units	MCL	MCLG	Max. Detected	Range	Violation?	Major Sources
Turbidity ¹	(Continuous) Every two hours during water treatment plant operation	ntu	(TT) = 0.3 ntu in 95% of samples	N/A	0.15	0.02 - 0.15	No	Soil runoff

¹Turbidity is a measure of the cloudiness or suspended particles in the water. Turbidity is monitored and recorded because it is a good indicator of the effectiveness of the water treatment plant filtration system. All samples met the turbidity limit of < 0.3 NTU throughout 2010.

Inorganic Compounds, Secondary & Unregulated Contaminants¹

Contaminant Name	Sample Date	Units	Min. Report Limit	SMCL	Detected Level	Violation?	Major Sources
Zinc	22-Feb-11	ppm	0.02	5	0.04	No	Erosion of natural deposits.
Total Dissolved Solids	22-Feb-11	ppm	1	500	60	No	Erosion of natural and unnatural deposits.
Chloride	22-Feb-11	ppm	1	250	5	No	Most chloride is attached to sodium in the form of sodium chloride (table salt).
Bromodichloromethane	19-Jul-11	ppb	0.5	---	2.9	---	By-product of chlorine disinfection, combined with organic matter.
Chloroform	19-Jul-11	ppb	0.5	---	25.6	---	By-product of chlorine disinfection, combined with organic matter.
Total Sodium ²	22-Feb-11	ppm	0.1	---	9.8	---	Runoff/leaching from natural deposits.

¹Monitoring for unregulated contaminants helps the EPA to determine where certain contaminants occur and whether they need to regulate those contaminants in the future.

²Sodium is an unregulated contaminant, but its MCL and recommended content in drinking water, should be limited to below 20.0 ppm.

Lead & Copper

Lead/Copper Corrosion	Sample Dates	Units	MCLG	Action Level	90 th Percentile ¹	Violation?	Major Sources
Lead—lead at consumers tap ²	Round 16 June 2, 2011 thru June 8 th , 2011	ppb	0	15	ND	No	Corrosion of household plumbing systems. (Samples are collected by homeowners at a tap inside of their home.)
Copper—copper at consumers tap ³	Round 16 June 2, 2011 thru June 8 th , 2011	ppm	1.3	1.3	ND	No	Corrosion of household plumbing systems. (Samples are collected by homeowners at a tap inside of their home.)

¹The 90th percentile is the highest result found in 90% of the samples when they are listed in order from the lowest to the highest results. (30 samples taken in 2011)

Conservation Tips:

The following are everyday tips and ideas about how you and your family can use water more efficiently in and around your home. *Savings are based on a family of four.

- Don't flush tissues and refuse. (Saves 400-600 gallons per month).
- Turn off the water while brushing your teeth. (Saves 3 gallons per day).
- Use a waterless hand cleaner when washing greasy hands, and don't let the water run. (Saves 7-10 gallons per day).
- Run only full loads in the washing machine and dishwasher. (Saves 75-200 gallons per week).
- Keep a bottle of cold water in the refrigerator for drinking instead of running the faucet. (Saves 200-300 gallons per month).
- Defrost frozen food without running water over the packages. (Saves 50-250 gallons per month).
- Rinse vegetables in a filled sink instead of running water. (Saves 150-25- gallons per month).
- Use the garbage disposal less and the garbage more. (Saves 50-150 gallons per month).
- Wash dishes with the least amount of detergent possible minimizing rinsing. (Saves 50-150 gallons per month).

Outdoor conservation tips available:
<http://www.clackamasproviders.org/water-conservation>



MORE INFORMATION ABOUT WEST LINN WATER

For more information about West Linn's drinking water, call Jim Whynot with the City of West Linn at 503-656-6081 or email jwhynot@westlinnoregon.gov.

West Linn is a member of the American Water Works Association. South Fork Water Board's website: www.sfwb.org.

Learn more about the utility rates at <http://westlinnoregon.gov/finance/utility-rate-information>.

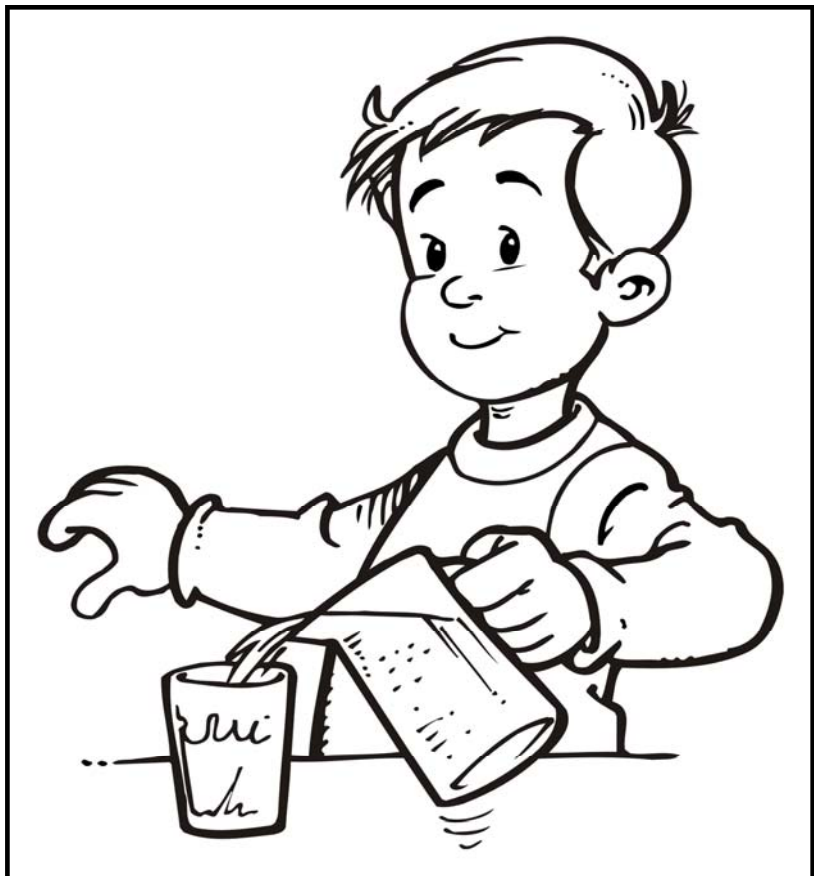
Learn more about the City of West Linn water system at <http://westlinnoregon.gov>.

For more information on drinking water quality data and regulations visit the Oregon Department of Human Services, Drinking Water Program website at www.oregon.gov/DHS/ph/dwp.

We encourage public interest and participation in our community's decisions affecting drinking water.

Regular meetings of the West Linn City Council occur on the second and fourth Monday of each month at City Hall, 22500 Salamo Road, West Linn, at 7:00 p.m.

Hey Kids! Color and learn with your parents!



Reasons to invest in West Linn's Water System:

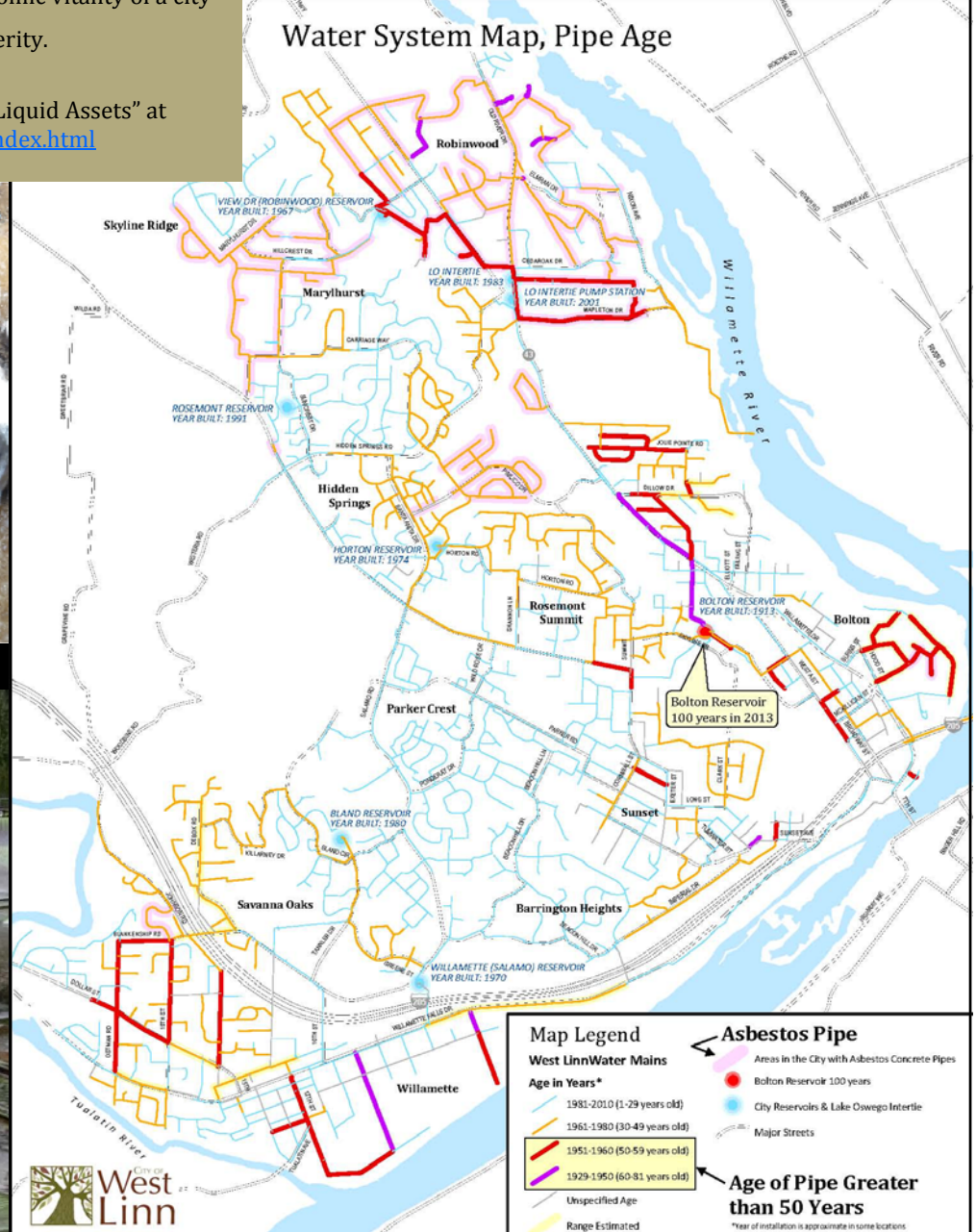
- Providing safe, clean water is a fundamental West Linn public health and safety service.
- The City's main reservoir – the Bolton Reservoir – is 97 years old and was built when West Linn was home to less than 2,000 people.
- The current water system is decades old and if left unmaintained, could threaten the safety of drinking water.
- The adopted Water Master Plan includes \$21 million in projects that directly affect the availability of clean drinking water and emergency water supply: line replacements, emergency supply connection improvements, and renovations to the 97-year-old Bolton Reservoir.
- Water infrastructure contributes to the economic vitality of a city and encourages economic growth and prosperity.

Watch an informational documentary on "Liquid Assets" at <http://www.liquidassets.psu.edu/index.html>

Water Break - May 17, 2010 on Broadway Street



Water System Map, Pipe Age



Holes and corrosion in water pipes



Bolton Reservoir - 100 years old in 2013

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GIS
 Geographic Information Systems