



# 2014 ANNUAL WATER QUALITY REPORT

*Drinking Water Quality Data from 2013*

CITY OF *Salem*  
AT YOUR SERVICE  
PUBLIC WORKS DEPARTMENT

## UNDERSTANDING SALEM'S SOURCE WATER ASSESSMENT



The City of Salem's Source Water Assessment, completed in 2003 with assistance from the Oregon Department of Environmental Quality, provides an inventory of potential contaminant sources that could pose a risk to water quality of the North Santiam River. The assessment, as required by the Federal Safe Drinking Water Act, also identifies sensitive areas where potential contaminant sources may have a greater potential to impact the water supply.

Results of the assessment reveal that potential contaminant sources include sediments/turbidity, microbiological agents, and nutrients. Potential sources of these contaminants include highways, leaking septic systems, grazing animals, forest practices, above-ground and below-ground storage tanks, wood processing and milling, junk yards, and auto and mechanical shops. The City continues to monitor activities within the North Santiam River Watershed that may impact its drinking water source.

Salem's Source Water Assessment is available on the City of Salem website at [www.cityofsalem.net](http://www.cityofsalem.net). The report can be found under **City Departments/ Public Works/Operations/ Water Services**. The report is also available by calling the Water Quality Hotline at **503-588-6323** or via email at [water@cityofsalem.net](mailto:water@cityofsalem.net).

## IMPORTANT INFORMATION REGARDING 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 water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. Environmental Protection Agency (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. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers.

EPA and Centers for Disease Control 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 **1-800-426-4791**.

## WHAT THE EPA WANTS YOU TO KNOW ABOUT CONTAMINANTS IN SOURCE WATERS

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 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 stormwater 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 stormwater runoff, and residential uses.
- **Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and which can also come from gas stations, urban stormwater 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 tap water is safe to drink, the EPA establishes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations set limits for contaminants in bottled water that must provide the same protection of public health.

## SALEM'S SOURCES FOR DRINKING WATER

For more than 75 years, the City of Salem has been getting its drinking water supply from the North Santiam River, which flows from the foothills of the Cascade Range and provides high quality river water suitable for slow sand filtration at the Geren Island Water Treatment Facility. Following slow sand filtration, the water is further treated with sodium hypochlorite (liquid chlorine) for disinfection, fluorosilicic acid (liquid fluoride) for fluoridation, and sodium carbonate (soda ash) to minimize the corrosion of lead and copper from household plumbing.

Additionally, the City utilizes an Aquifer Storage and Recovery (ASR) system, located in south Salem. In the winter months, during peak river flows and low customer water demand, treated drinking water is injected into the ASR system. The water is stored in a naturally existing aquifer located 350 feet below Woodmansee Park. During the summer months, when low river flows and high customer water demand exist, water is recovered from the ASR system. The recovered water is treated with calcium hypochlorite (chlorine) for disinfection and conveyed to the distribution system serving south Salem water customers.

## LEAD AND COPPER RESULTS ALLOW CITY TO REMAIN ON REDUCED MONITORING

The City of Salem will remain on reduced lead and copper monitoring following sampling in 2013. Results show that only one Tier 1 home exceeded the action level for lead and no Tier 1 homes exceeded the action level for copper. The City of Salem collected samples from 91 Tier 1 homes from June 1, 2013, to September 30, 2013. As such, the City will remain on reduced monitoring and will not sample again until 2016.

Assessments conducted in the 1990s identified 146 Tier 1 homes that qualified for lead and copper sampling. Tier 1 homes are designated most at risk for lead and copper because they were constructed using lead or lead-based plumbing components. The EPA considers homes built between 1983 and 1985 most at risk. Each Tier 1 home is sent a sample kit and asked to participate in the sampling program.

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 Salem Public Works Department 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 30 seconds to 2 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. Information on lead in drinking water, testing methods, and steps you can take to minimize your exposure is available from the Safe Drinking Water Hotline at **1-800-426-4791** or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).



### PLEASE SHARE!

If you are a manager or owner of a business or multifamily dwelling, please share this report with your employees or residents. If you would like additional copies, please call the Water Quality Hotline at **503-588-6323**.



### ¿ESPAÑOL?

Este documento contiene información importante sobre su agua potable. Si usted desea recibir una copia de este documento en Español, por favor, llame al **503-588-6323** y pida una copia del Reporte de Calidad de Agua o visite nuestra página electrónica [www.cityofsalem.net](http://www.cityofsalem.net).

This document contains information about your potable water. If you would like to receive a copy of this document in Spanish, please call **503-588-6323** and ask for a Water Quality Report or visit our website at [www.cityofsalem.net](http://www.cityofsalem.net).



### FREE LEAD TESTING FOR SALEM WATER CUSTOMERS

The City of Salem offers free lead testing to its water customers. If you are concerned about the levels of lead in your home and would like to request a free test, please call the Water Quality Hotline at **503-588-6323**.



# WHAT IS IN SALEM'S DRINKING WATER?

TEST	DATE TESTED	UNIT	MCLG (MRDLG)	MCL (MRDL)	DETECTED LEVEL	RANGE		VIOLATION	MAJOR SOURCES
						LOWEST	HIGHEST		
<b>2013 Water Quality Data from Geren Island Treatment Facility, Distribution System, and Salem Water Customers</b>									
<b>Inorganic</b>									
Fluoride	2013	ppm	4	4	Average: 0.71	0.55	0.80	NO	Erosion of natural deposits; water additive—promotes strong teeth
Nitrate*	2012	ppm	10	10	Average: 0.06	One sample collected		NO	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits
Nitrate-Nitrite*	2012	ppm	10	10	Average: 0.06	One sample collected		NO	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits
Barium	2012	ppm	2	2	0.0018	One sample collected		NO	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Copper	2013	ppm	1.3	AL=1.3	90th Percentile: 0.372 Homes exceeding: 0	<0.03	0.676	NO	Corrosion of household plumbing systems
Lead	2013	ppb	0	AL=15	90th Percentile: 4.4 Homes exceeding: 1	<1.0	29	NO	Corrosion of household plumbing systems
<b>Microbiological</b>									
Turbidity	2013	NTU	N/A	TT	100% of samples meet turbidity standards Average: 0.08	0.04	1.13	NO	Erosion and soil runoff
Total coliform	2013	No units	0	Presence of coliform bacteria in >5% of monthly samples	1,565 samples collected; no coliform bacteria were present in any samples	None	None	NO	Naturally present in the environment
Fecal coliform or <i>E. coli</i> bacteria					Fecal coliform or <i>E. coli</i> bacteria were not detected	None	None	NO	Human or animal fecal waste
<b>Disinfection By-Products, By-Product Precursors, and Disinfectant Residual</b>									
Haloacetic acids	2013	ppb	0	60	Locational Running Annual Average: 46	ND	56	NO	By-product of drinking water disinfection
Total Trihalomethanes	2013	ppb	0	80	Locational Running Annual Average: 47	9	57	NO	By-product of drinking water disinfection
Total Organic Carbon	2013	ppm	N/A	TT	Raw Water Annual Average: 0.98	0.83	1.2	NO	Naturally present in the environment
Chlorine Residual	2013	ppm	4.0	4.0	Entry Point Average: 1.28	0.11	1.54	NO	Remaining chlorine from disinfection process
<b>Radioactive Contaminants</b>									
Combined Radium*	2011	pCi/L	0	5	0.26	One sample collected		NO	Erosion of natural deposits
<b>Unregulated Constituents</b>									
Sodium	2013	ppm	N/A	20†	6.30	One sample collected		NO	Erosion of natural deposits
<b>2013 Water Quality Data from Aquifer Storage and Recovery Wells</b>									
<b>Inorganic</b>									
Barium	2013	ppm	2	2	0.0044	One sample collected		NO	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Fluoride	2013	ppm	4	4	0.69	One sample collected		NO	Erosion of natural deposits; water additive—promotes strong teeth
Chromium*	2010	ppb	100	100	1.0	One sample collected		NO	From steel and pulp mills; erosion of natural deposits
Lead*	2010	ppb	0	15	0.8	One sample collected		NO	Corrosion of household plumbing systems; erosion of natural deposits
<b>Organic</b>									
Hexachlorocyclo-pentadiene*	2010	ppb	50	50	0.08	ND	0.08	NO	Discharge from chemical factories
Di(2-ethylhexyl)phthalate*	2009	ppb	0	6	0.7	One sample collected		NO	Discharge from rubber and chemical factories
<b>Unregulated Constituents</b>									
Sodium	2013	ppm	N/A	20†	7.15	One sample collected		NO	Erosion of natural deposits

\* The City of Salem is required to report any detected contaminant within the last five years.

† EPA advisory level only.





# WHERE DOES SALEM'S WATER COME FROM?

## SALEM'S WATER SYSTEM

—Serving a Population of 189,000 Daily from the North Santiam River Watershed



## DEFINITIONS

- **Maximum Contaminant Level Goal (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 (MCL):** 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.
- **Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements a water system must follow.
- **Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.
- **Maximum Residual Disinfectant Level (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.
- **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.



## UNITS OF MEASUREMENT

- **Parts per Million (ppm):** One part per million is equal to one cup of food coloring in an Olympic size swimming pool (130,000 gallons)
- **Parts per Billion (ppb):** One part per billion is equal to one drop of food coloring in an Olympic size swimming pool (130,000 gallons)
- **Nephelometric Turbidity Unit (NTU):** The standard unit of measurement used in water analysis to measure turbidity in water samples.
- **Picocuries per Liter (pCi/L):** One part per billion of a curie per liter of water, used to measure radiation at very low levels.

# 9.24

## billion gallons

Water produced annually  
by the City of Salem



### WANT TO LEARN MORE?

#### US EPA

Safe Drinking Water Hotline  
1-800-426-4791

[www.epa.gov](http://www.epa.gov)

#### Oregon Health Authority

Drinking Water Program  
971-673-0405

<http://public.health.oregon.gov/HealthyEnvironments/DrinkingWater>

(Salem's ID# 00731)

#### City of Salem

#### Public Works Department

Water Quality Hotline  
503-588-6323

[water@cityofsalem.net](mailto:water@cityofsalem.net)

Water Conservation Hotline  
503-588-6323

[water@cityofsalem.net](mailto:water@cityofsalem.net)

#### Water Outreach

#### and Education Program

To arrange a classroom presentation, field trip, or community service project, call 503-588-6211

#### City of Salem Website

[www.cityofsalem.net](http://www.cityofsalem.net)



## OTHER RESULTS

**Turbidity** is a measure of water's clarity. High turbidity (muddy water) results from suspended soil and organic matter in water. This can increase the risk of contamination by interfering with the drinking water treatment process. All of the City's turbidity samples were below required levels.

**Radon** is a naturally-occurring radioactive gas found throughout the U.S., more often in groundwater than surface water. Radon levels taken from Salem's Aquifer Storage and Recovery (ASR) wells are consistent with levels typically found in Salem area groundwater.

**Cryptosporidium** is a harmful microbial pathogen found in surface water throughout the U.S. Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Cryptosporidium must be ingested to cause disease and may be spread through means other than drinking water. Monitoring in 2013 did not detect Cryptosporidium in untreated North Santiam River source water.

## SALEM SAMPLES FOR UNREGULATED CONTAMINANTS

During 2013, the City of Salem sampled for more than 28 unregulated contaminants ranging from naturally-occurring metals to pesticides, flame retardants, hormones, and pharmaceuticals as mandated by the Federal Safe Drinking Water Act. The Unregulated Contaminant Monitoring Rule (UCMR) requires water providers nationwide to sample for unregulated contaminants once every five years. The EPA uses these sampling efforts to collect information about contaminants suspected to be present in drinking water but which are currently not regulated by health-based limits under the Federal Safe Drinking Water Act. The data help prioritize further regulatory actions intended to protect public health. More information about the UCMR is available from the Safe Drinking Water Hotline at **1-800-426-4791**.

The table below lists only those unregulated contaminants which were detected in Salem's drinking water.

### Unregulated Contaminant Monitoring Rule—Round 3 (UCMR3) Results

Samples collected from Entry Point to the Distribution System (Turner Control) and Maximum Residence Time (Eola)

DETECTED ANALYTE	DATE TESTED	UNIT	MRL* (ppb)	DETECTED LEVEL	RANGE	
					LOWEST	HIGHEST
Chlorate	2013	ppb	20	Average: 95.3	82	110
Strontium	2013	ppb	0.3	Average: 22.8	20	24
Vanadium	2013	ppb	0.2	Average: 1.3	0.98	1.7
Hexavalent Chromium	2013	ppb	0.03	Average: 0.065	0.042	0.1
Chromium	2013	ppb	0.2	Average: 0.29	0.26	0.31

\* MRL is the UCMR Minimum Reporting Level.

## CITY CHANGES DELIVERY OF THE ANNUAL WATER QUALITY REPORT IN 2015

The Consumer Confidence Report (CCR) Rule was part of the 1996 Amendments to the Federal Safe Drinking Water Act and was intended as an effort to increase the public's right-to-know about their drinking water. As part of the CCR, the City of Salem is required to produce this report and deliver it by mail to its water customers by July 1 each year. In January 2013, the EPA released a memo that clarified the requirements of the CCR, specifically regarding guidelines for electronic delivery of the report. The EPA now acknowledges electronic delivery as a suitable means of sharing the annual water quality report.

Beginning in 2015, Salem water customers will receive a postcard in the mail indicating that the water quality report is available electronically on the City of Salem website. Water customers who do not have access to the internet or who would prefer to receive a hard copy will be able to request a copy by calling the Water Quality Hotline at **503-588-6323** or writing to **City of Salem Public Works Department, Water Quality, 1410 20th Street SE, Bldg 2, Salem, Oregon 97302**.

## WAYS TO GET INVOLVED!

### Water-Wastewater Task Force

The Water-Wastewater Task Force, a citizen advisory committee, advises Salem Public Works Department and City Council. For more information and meeting dates, call **503-588-6211**.

Salem City Council is the policy-making body for the water system and meets on the second and fourth Mondays of each month at 6:30 p.m. The meetings are open to the public and are held in the **City Council Chambers, Room 240, Vern Miller Civic Center, 555 Liberty Street SE, Salem, Oregon**. Call **503-588-6091** or visit [www.cityofsalem.net](http://www.cityofsalem.net) for more information.

North Santiam Watershed Council's mission is to promote and sustain the health of the North Santiam Watershed. The meetings are open to the public and are held in the **Stayton Community Center, 4000 W. Virginia Avenue, Stayton, Oregon** on the second Thursday of each month at 7 p.m. Call **503-930-8202** for more information.

### One Inch Per Week

Your lawn only needs approximately one inch of water per week to stay healthy and green. Do you know how much water you apply every week? Request a free *One Inch Per Week* lawn watering gauge to find out. Call the Water Quality Hotline at **503-588-6323** or email [water@cityofsalem.net](mailto:water@cityofsalem.net).

### City Offers Free Conservation Kits to Water Customers

Retrofitting existing fixtures can help reduce the amount of water you use every day and help save money on your utility bill. The City offers free indoor and outdoor water conservation kits to its customers. To request a free water conservation kit, please call the Water Quality Hotline at **503-588-6323** or email [water@cityofsalem.net](mailto:water@cityofsalem.net).



## SALEM FAMILIES BENEFIT FROM LOW INCOME ASSISTANCE PROGRAM

The Low Income Assistance Program, sponsored by the City of Salem, is dedicated to helping individuals and families facing financial difficulties in paying their water, wastewater, and stormwater bills. The program is possible due to generous utility customers making voluntary tax-deductible donations used exclusively for low income assistance.

Since February 2008, a total of **\$132,461.27** has been distributed to **1,651** families and individuals who would have otherwise faced possible water service disruption. Currently the donation amounts received are not enough to keep up with the low income requests for distribution. If you would like to donate to the Low Income Assistance Program or if you are in need of low income assistance for your utility bill, please visit our website at [www.cityofsalem.net](http://www.cityofsalem.net) or contact the Customer Services Call Center at **503-588-6099** for more information.



**43.66**  
million gallons  
Salem 2013 peak day  
water use

### THE FEDERAL SAFE DRINKING WATER ACT

requires this annual water quality report be mailed to every customer to provide information regarding the quality of the community's drinking water. Each copy of this report costs \$0.30 to print and mail. If you have any questions or comments, please email [water@cityofsalem.net](mailto:water@cityofsalem.net) or call the Water Quality Hotline at **503-588-6323**.

This report is printed on recycled materials.

It is the City of Salem's policy to assure that no person shall be discriminated against on the grounds of race, religion, color, sex, marital status, familial status, national origin, age, mental or physical disability, sexual orientation, gender identity, and source of income, as provided by *Salem Revised Code* Chapter 97. The City of Salem also fully complies with Title VI of the Civil Rights Act of 1964, and Americans with Disabilities Act of 1990, and related statutes and regulations, in all programs and activities. Special accommodations are available, upon request, for persons with disabilities or those needing sign language interpretations, or languages other than English. To request accommodations or services, please call 503-588-6211.



## To Our Valued Customers,

It is my pleasure to present the City of Salem's **2014 Annual Water Quality Report**. Each year, the EPA requires all drinking water suppliers to prepare an annual water quality report for its customers. This report includes information about Salem's drinking water, including where it comes from, how it is treated, and what, if any, contaminants it may contain.

Our commitment is to provide drinking water that consistently meets state and federal regulations. Each day our staff strives to uphold this pledge, and as a result, in 2013, City of Salem drinking water met or surpassed every public health requirement—more than 120 drinking water quality standards—set by the Oregon Health Authority and the EPA.

As always, we strive to continue to provide excellent customer service by delivering high-quality drinking water to your tap. I hope you will take a moment to read this report or visit [www.cityofsalem.net](http://www.cityofsalem.net) for more information on Salem's drinking water.

A blue ink signature of Lacey Goeres-Priest.

**Lacey Goeres-Priest**

Water Quality Supervisor  
City of Salem Public Works Department  
503-588-6211