Lead Exposure From Water

Elevated levels of lead in drinking water can cause serious health problems, especially for pregnant women and young children. Lead in drinking water comes primarily from materials and components associated with service lines and home plumbing.

The City/County Utility Commission 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 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. Information and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at (800) 426-4791 or go online at *www.epa.gov/safewater/lead*.

The Winston-Salem/Forsyth County water system is operated by the City/County Utility Commission. The commission meets monthly the second Monday of each month at 2 p.m. in City Hall, Room 230, 101 N. Main Street, Winston-Salem, N.C. For questions about this report or the quality of our drinking water, call Utilities Administration at (336) 727-8000.

City of Winston-Salem

Mayor: *Allen Joines;* ***City Council:*** *Vivian H. Burke, Mayor Pro Tempore, Northeast Ward; Denise D. Adams, North Ward; Dan Besse, Southwest Ward; Robert C. Clark, West Ward; Molly Leight, South Ward; Wanda Merschel, Northwest Ward; Derwin L. Montgomery, East Ward; James Taylor Jr., Southeast Ward;* ***City Manager:*** *Lee D. Garrity*

Forsyth County

County Commissioners: *Richard V. Linville, Debra Conrad, Walter Marshall, David R. Plyler, Gloria D. Whisenhunt, Bill Whiteheart, Everette Witherspoon;* ***County Manager:*** *Dudley Watts*

Produced by the
Winston-Salem/Forsyth County Utility Commission
101 N. Main Street, Suite 357
Winston-Salem, N.C. 27101
City Link 311 (336) 727-8000

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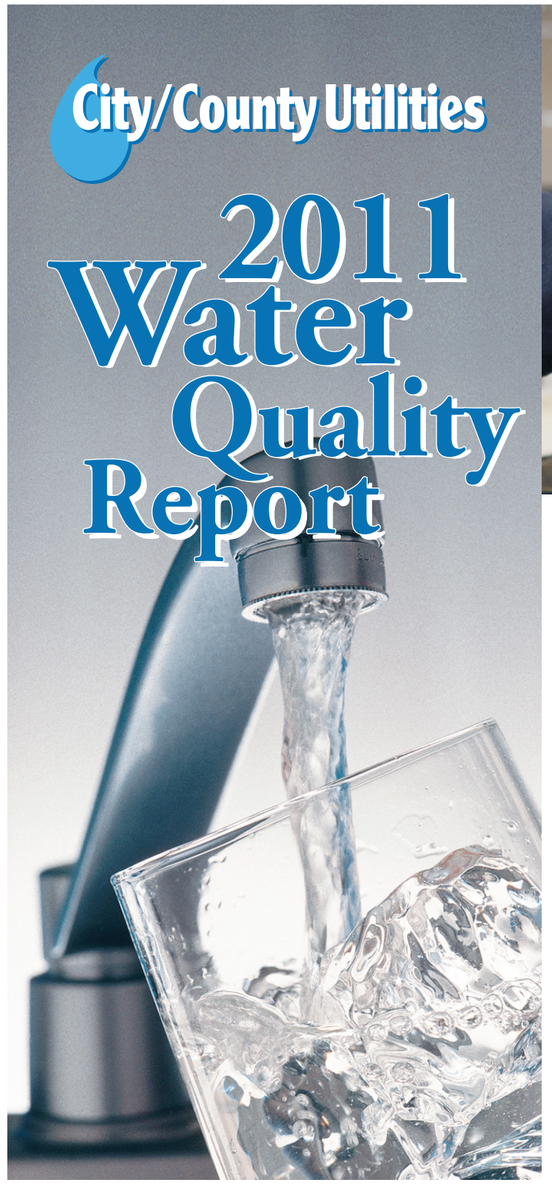
City/County Utilities

2011 Water Quality Report



Winston-Salem/Forsyth County Utility Commission drinking water exceeds all water quality standards

The Winston-Salem/Forsyth County Utility Commission operates three water treatment facilities drawing water from both the Yadkin River and Salem Lake. Together, these water treatment facilities can produce 91 million gallons per day of drinking water. The Neilson and Swann water plants can treat 48 and 25 million gallons per day, respectively, from the Yadkin River. The Thomas Water Plant, treats 18 million gallons per day.

For 2011, as in previous years, these treatment facilities have met or exceeded all state and federal standards for drinking water quality. This accomplishment reflects the quality and dedication of the employees who work year-round to provide adequate supplies of safe drinking water.

This brochure includes details about where your drinking water comes from, how it is treated, what it contains, and exactly how it compares to state and federal standards. The Utility Commission is providing this information to you because it is committed to delivering a quality product to its customers. This report is updated on a regular basis and mailed annually to our customers.

Protecting Our Water Sources

Sources of drinking water (both tap and bottled) include rivers, lakes, 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 wastewater discharges, oil and gas productions, 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 come from gas stations, urban storm water runoff, and septic systems.
- **Radioactive contaminants** which can be naturally occurring or the result of oil and gas production and mining activities.

To ensure that tap water is safe to drink, the Environmental Protection Agency limits 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 public health.

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 the 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 at (800) 426-4791.

Treated Water Quality

The following substances were detected in the Winston-Salem/Forsyth County public water supply during the 2011 calendar year.

Regulated at the Treatment Plant

Substance	Highest Level Allowed (EPA's MCL[1])	Ideal Goals (EPA's MCLG[2])	Range of Detections	Average Level Detected	Source
Barium, ppb[3]	2000	2000	2.0 - 17.0	11.0	Natural geology; drilling operations; metal refinery wastes
Fluoride, ppm[4]	4.0[5]	4.0	0.57 - 1.17	0.88	Water additive promotes strong teeth; erosion of natural deposits
Nitrate, ppm	10.0	10.0	0.40 - 0.79	0.55	Nat. geology; battery manufacturing & metal refinery wastes
Orthophosphate, ppm	0.5 - 5.0	1.0	0.55 - 1.17	0.84	
Total Organic Carbon	Treatment Technique[6]	n/a	1.02 - 2.57	1.45	Natural organic matter
Turbidity, NTU[7]	*Treatment Technique	n/a	0.02 - 0.20	0.05	Soil erosion; natural geology

Regulated in the Distribution System

Total Trihalomethanes, ppb	80 RAA[9]	0.0	12 - 114	46.1 RAA	Byproducts of drinking water disinfection
Total Haloacetic Acids, ppb	60 RAA	0.0	12.9 - 59.3	32.4 RAA	Byproducts of drinking water disinfection
Asbestos, MFL[10]	7	0	n/a	0.39	
Chlorine, ppm	4.0	4.0	0 - 1.8	0.96	
Orthophosphate, ppm	0.25 - 1.5	1.0	0.57 - 0.81	0.69	Natural geology
Alpha Emitters, pCi/L[11]	15.0	0.0	0.0	0.0	Natural geology
Beta Emitters, pCi/L	50.0	0.0	0.0	0.0	Natural geology and man-made sources
Total Coliforms	Less than 5% positive	0.0	n/a	0.0	

Unregulated Substances

Sulfate, ppm	500 proposed	Not Regulated	8.49 - 18.4	11.8	

Regulated at the Consumers' Tap

Substance	Highest Level Allowed (EPA's MCL)	Ideal Goals (EPA's MCLG)	Number of Sites Sampled	Number of Sites Above the Action Level	90th Percentile Concentration, ppb	Source (both lead and copper)
Lead, ppb	15.0 (action level[12])	0.0	50	0	< 3.0	Corrosion of household plumbing;
Copper, ppb	1,300 (action level)	1,300	50	0	70.0	Erosion of natural deposits.

Definitions:

[1] **Maximum Contaminant Level (MCL)** - The highest level of a contaminant that is allowed in drinking water.

[2] **Maximum Contaminant Level Goal (MCLG)** - The level of a contaminant in drinking water below which there is no known or expected risk to health.

[3] **ppb** - One part per billion.
(For example, one penny in $10,000,000.)

[4] **ppm** - One part per million.
(For example, one penny in $10,000.)

[5] The EPA's maximum contaminant level for fluoride is 4.0 mg/L, however the State of North Carolina has established a maximum contaminant level of 2.0 mg/L.

[6] **Treatment technique** - Treatment technique for total organic carbon was complied with throughout 2010.

[7] **NTU** - nephelometric turbidity unit, a measure of the cloudiness of water.

[8] **Treatment technique** - 95% of the measurements taken in one month must be below 0.3 NTU.

[9] **Running annual average** - last four quarterly samples collected from the system.

[10] **MFL** - A measure of asbestos contamination as measured by millions of fibers per liter of water

[11] **PCi/L** - Picocuries per liter is a measure of the radioactivity in water. A picocurie is 10^{-12} curies and is the quantity of radioactive material producing 2.22 nuclear transformations per minute.

[12] **Action Level** - The concentration of a contaminant that triggers treatment or other requirement that a water system must follow. Action levels are reported at the 90th percentile for homes at greatest risk.

Copies of this report or additional information may be obtained by calling Bill Brewer, Water Treatment Superintendent, at City Link **311** (336) 727-8000.

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EN ESPAÑOL

Si desea recibir una copia de este reporte en Español o si tiene preguntas con respecto a la calidad del agua que consume, por favor comuniquese con el departamento the servicios públicos durante las horas de trabajo, el teléfono es (336)945-1179.

Physical & Mineral Characteristics

For Calendar Year 2011

Constituent	Annual Range Detected	Annual Average
Alkalinity, ppm	13.5 - 32.0	22.9
Aluminum, ppm	0.003 - 0.024	0.011
Calcium, ppm	2.40 - 5.20	4.22
Carbon Dioxide ppm	1.0 - 12.0	4.20
Chloride, ppm	5.53 - 11.3	7.17
Chlorine, ppm	0.66 - 2.51	1.48
Chromium, ppm	ND - 0.001*	0.000
Conductivity, micromhos/cm	88.9 - 132.2	108.7
Copper, ppm	ND - 0.009*	0.002
Hardness, ppm	11.0 - 32	20.4
Iron	0 - 0.01	0.0004
Magnesium, ppm	0.80 - 1.80	1.49
Manganese, ppb	ND - 0.005*	0.001
Nickel, ppm	ND - 0.009*	0.001
pH, Standard Units	6.6 - 9.3	7.50
Phosphate, ppm	0.77 - 1.41	0.95
Potassium, ppm	1.1 - 2.4	1.81
Silica, ppm	5.6 - 24.2	11.83
Sodium, ppm	5.9 - 15.6	10.60
Temperature, Deg. C	3.9 - 38.4	19.9
Zinc, ppm	0.079 - 0.347	0.199

*ND - Not detected.

Cryptosporidium sp.

Cryptosporidium sp. is a microscopic organism that, when ingested, can cause diarrhea, fever and other gastrointestinal symptoms. The organism occurs naturally in surface waters (lakes & streams) and comes from animal waste. Cryptosporidium sp. is eliminated by an effective treatment combination of coagulation, sedimentation, filtration, and disinfection. Both of the city's water sources are currently being tested monthly for Cryptosporidium sp. and to date it has not been detected. Cryptosporidium sp. has never been detected in our treated drinking water.

Special Concerns

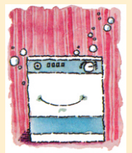
Some people may be more vulnerable to contaminants in drinking water than the general population. People whose immune systems have been compromised – such as people with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants – can be particularly at risk for infections. These people should seek advice about drinking water from their health care providers. Environmental Protection Agency and Centers for Disease Control guidelines on appropriate means to lessen risk of infection by Cryptosporidium sp. and other microbiological contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.

Water conservation saves you money!

Showers or baths?
Partly-filled tubs use far less water than a long shower. A short shower uses less water than a full tub. Most showers pour out 5 to 10 gallons a minute. Reduced-flow shower heads can cut water use while still providing an invigorating spray.

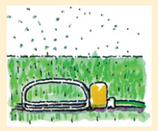
Leaks
Fix leaky plumbing. A slow drip can waste 15 to 20 gallons a day. A 1/16-inch faucet leak wastes 100 gallons a day!

In the kitchen
Dishwashers use 12 gallons every time they run. Make sure yours is full before you run it. And don't leave the faucet running while you prepare food or wash dishes.



Doing laundry
Many washing machines use up to 40 gallons per load. Save up for full load, or adjust your washing machine for a smaller load if you can.

Lawns
Garden hoses can pour out 600 gallons in a few hours. Set timers to remind you to turn off your sprinkler promptly. Watering in the evening reduces evaporation, so more water sinks in.



Outdoors
Use a bucket when washing your car and run the hose only for rinsing. Never hose off sidewalks and driveways. Use a broom instead.