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 Utilities 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.

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)727-8418.

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) 727-8418.

Produced by the
Winston-Salem/Forsyth County Utility Commission
101 N. Main Street, Suite 357
Winston-Salem, N.C. 27102
(336) 727-8418

Designed by City of Winston-Salem
Marketing and Communications Department

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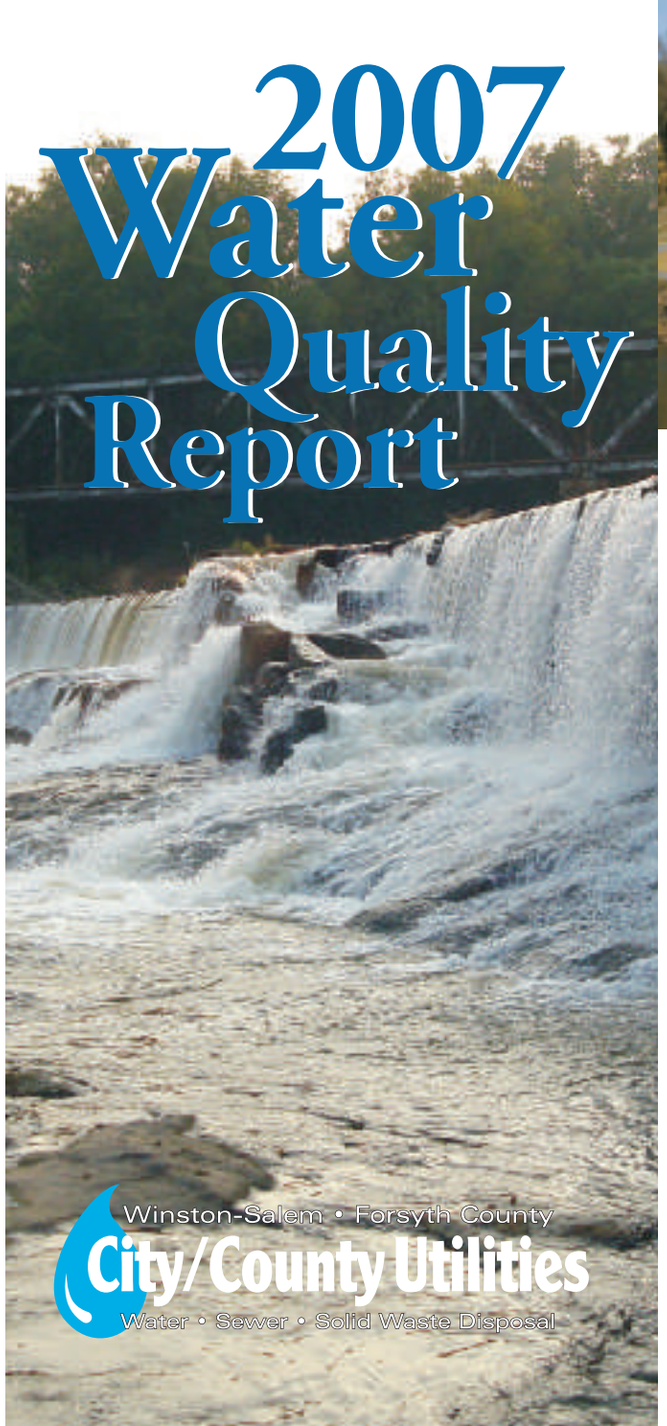
2007 Water Quality Report



Winston-Salem • Forsyth County
City/County Utilities
Water • Sewer • Solid Waste Disposal

The Yadkin River supplies 80 percent of Forsyth County's fresh water.

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 97 million gallons per day of drinking water. The Neilson and Northwest Water Plants can treat 48 and 25 million gallons per day, respectively, from the Yadkin River. The Thomas Water Plant can treat 24 million gallons per day from either the Yadkin River or Salem Lake.

For 2007, 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 2007 calendar year.*

Regulated at the Treatment Plant

Substance	Highest Level Allowed (EPA's MCL[1])	Ideal Goals (EPA's MCLG[2])	Range of Detection	Average Level Detected	Source
Barium, ppb[3]	2000	2000	8.0 - 29.0	15.0	Natural geology; drilling operations; metal refinery wastes
Fluoride, ppm[5]	4.0[6]	4.0	0.47 - 1.24	0.89	Nat. geology; Industrial waste byproduct by PVC manufacturers
Nitrate, ppm	10.0	10.0	0.15 - 0.79	0.56	Nat. geology; battery manufacturing & metal refinery wastes
Total Organic Carbon	Treatment Technique[7]	n/a	0.90 - 2.10	1.23	Nat. geology; water treatment additive
Turbidity, NTU[8]	Treatment Technique[9]	n/a	0.01 - 0.21	0.06	Soil erosion; natural geology

Regulated in the Distribution System

Total Trihalomethanes, ppb	80 RAA[9]	0.0	7.0 - 104.0	40.0 RAA	Byproducts of drinking water disinfection
Total Haloacetic Acids, ppb	60 RAA	0.0	11.2 - 64	36.0 RAA	Byproducts of drinking water disinfection
Chlorine, ppm	4.0	4.0	0.010 - 2.20	1.06	
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
Total Coliforms	Less than 5% positive	0.0	n/a	0.0	Natural geology and man-made sources

Unregulated Substances

Bromodichloromethane, ppb	Not Regulated	Not Regulated	3.0 - 14.0	7.0	Component of the trihalomethanes
Chlorodibromomethane, ppb	Not Regulated	Not Regulated	ND[11] - 2.0	ND	Component of the trihalomethanes
Chloroform, ppb	Not Regulated	Not Regulated	10.0 - 88.0	36.6	Component of the trihalomethanes
Monochloroacetic Acid, ppb	Not Regulated	Not Regulated	ND - 3.7	ND	Component of Haloacetic acids
Dichloroacetic Acid, ppb	Not Regulated	Not Regulated	2.3 - 38.5	19.2	Component of Haloacetic acids
Trichloroacetic Acid, ppb	Not Regulated	Not Regulated	2.1 - 31.7	14.9	Component of Haloacetic acids
Dibromoacetic Acid, ppb	Not Regulated	Not Regulated	ND - 1.9	ND	
Sulfate, ppm	500 proposed	Not Regulated	7.81 - 15.76	11.9	Natural geology

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	71	1	< 3.0	Corrosion of household plumbing;
Copper, ppb	1,300 (action level)	1,300	71	0	< 50.0	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] **ND** - Not detected.

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

[6] 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.

[7] **Treatment technique** - Treatment technique for total organic carbon was complied with throughout 2007.

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

[9] **Treatment technique** - No more than 5% of measurements in a given month may exceed 0.3 NTU.

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

[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 (336) 945-1179.

Physical & Mineral Characteristics

For Calendar Year 2007

Constituent	Annual Range Detected	Annual Average
Alkalinity, ppm	13.0 - 43.0	23.0
Aluminum, ppm	0.006 - 0.047	0.018
Calcium, ppm	2.58 - 7.86	4.27
Carbon Dioxide ppm	2.0 - 6.0	5.0
Chloride, ppm	6.62 - 15.17	8.70
Chlorine, ppm	1.90 - 2.11	1.39
Chromium, ppm	ND - 0.002	ND
Conductivity, micromhos/cm	89 - 169	113
Copper, ppm	ND - 0.009	ND
Hardness, ppm	11.0 - 37.0	21
Magnesium, ppm	1.21 - 2.46	1.58
Manganese, ppb	ND - 0.009	0.003
Nickel, ppm	ND - 0.001	ND
pH, Standard Units	6.76 - 8.03	7.48
Phosphorus, ppm	0.22 - 0.60	0.38
Potassium, ppm	1.32 - 2.82	2.02
Silicon, ppm	3.58 - 6.55	5.28
Sodium, ppm	6.13 - 14.29	9.78
Temperature, Deg. C	5.7 - 28.9	18.2
Zinc, ppm	0.158 - 0.393	0.254

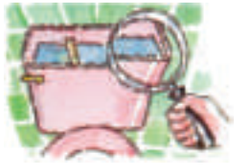
Cryptosporidium sp.

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 from 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!



Toilets

Most toilets use more water than necessary. Fill a plastic soap or laundry bottle with water and put it in the tank. (Don't use bricks, they disintegrate and can cause plumbing problems.)

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.