

This Annual Drinking Water Quality Report for calendar year 2001 is designed to provide you with valuable information about your drinking water quality. The Roanoke County Utility Department is committed to providing you with a safe and dependable supply of drinking water, and we want you to understand the efforts we make to protect your water supply. We are proud to report that the quality of your drinking water meets or exceeds all state and federal requirements administered by the Virginia Department of Health (VDH), Office of Water Programs.

Trained, licensed professionals staff your Utility department. Water Operators are tested and licensed by the State of Virginia to operate water purification facilities, our laboratory is certified to test for Bacteriological and Inorganic quality. Operations Personnel have 103 years of combined experience. We are proud of the facility you have provided to enable us to supply this quality of water.

If you have questions about this report, want additional information about any aspect of your drinking water, or want to know how to participate in decisions that may affect the quality of your drinking water, please contact:

Roanoke County Utility Department  
(540) 387-6104

### GENERAL INFORMATION

As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activity. Substances, referred to as contaminants, in source water may come from septic systems, discharges from domestic or industrial wastewater treatment facilities, agricultural and farming activities, urban stormwater runoff, residential uses, and many other types of activities. Water from surface sources is treated to make it suitable for consumption while groundwater may or may not require any treatment.

All drinking water, including bottled drinking 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 can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (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, EPA/CDC. Guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

### SOURCES AND TREATMENT OF YOUR DRINKING WATER

The Roanoke County water system is comprised of 7 separate source areas. These sources include surface water from the Spring Hollow Reservoir, ground water, water traded with the City of Roanoke, and water purchased from the City of Salem.



The Spring Hollow Water System. The source water for this system comes from the Roanoke River and is pumped into the Spring Hollow Reservoir, a 3.2 billion-gallon side stream storage reservoir. Water is withdrawn for treatment at the Spring Hollow Water Treatment Facility. Treatment includes clarification, filtration, chlorine disinfection, and fluoridation. The treatment facility currently has a capacity of 15 MGD and can be expanded to 30 MGD. Treated water is stored in a 2 MG clearwell then pumped through the North and South transmission lines to the distribution system. The current usage averages 4.92 MGD. This system supplies water to Hidden Valley, Oak Grove, Penn Forest, Hunting Hills, Clearbrook, Castle Rock, Canterbury Park, Bridlewood, Brookwood, Woodbridge, Big Hill, Campbell Hills, Twine Hollow, Little Brushy Mountain, Cherokee Hills, Glenvar East, North Beverly Heights, Wooded Acres, Berwick Heights, Georgetown Park, Mount Vernon Heights, North Lakes, Montclair, The Woodlands, Starmount, Hanging Rock subdivisions, and adjacent areas.

The Carvins Cove Source is water traded with the City of Roanoke. This water comes from their Carvins Cove water filtration plant. Carvins Cove supplies water to North County areas of Boxley Hills, The Hollins Community, Ardmore, Shadwell, Hunt Ridge, Botetourt East, Glade Creek, The Orchards, and adjacent areas and The South County areas of Hampden Hills and Brookfield.

The **East County System** supplies the LaBellevue subdivision. The source is Water one (1) drilled well. Labellevue well number 7, which is equipped with a solution chlorinator to disinfect the water prior to distribution. Additional capacity is available from standby wells and the Carvins Cove Source.

The **Salem Source** is water purchased through contract from the City of Salem. This water comes from their Downtown and Glenvar filtration plants. The Salem source supplies Andrew Lewis Place, Robin Hood Park, and the County area along West Main Street, east of the Glenvar Treatment Plant.

The **Long Ridge System** The source is groundwater obtained from two (2) drilled wells. Both wells are equipped with a solution chlorinator to disinfect the water prior to distribution. Water is distributed throughout the community by a storage tank, 2 booster pump stations to serve the higher elevations, and distribution piping consisting of 8 inch, 6 inch, 4 inch, and 2 inch pipe. The total Source/Pump Capacity is equal to 256,320 gpd. Current usage is approximately 51,674 gpd. This system supplies water to the Homewood, Wexford, Sugarloaf Hills subdivisions, and adjoining areas.

The **Martin Creek System** The source is groundwater obtained from nine (9) drilled wells. Wells number 2, 3, 4, 5, and 6 are equipped with a solution chlorinator to disinfect the water prior to distribution. Water is distributed throughout the community by two (2) storage tanks, and distribution piping consisting of 8 inch, 6 inch, and 4 inch pipe. The total Source/Pump Capacity is equal to 76,000 gpd. Current usage is approximately 33,782 gpd. This system supplies water to the Forest Edge and Carriage Hills area.

The **Delaney Court System** The source is groundwater obtained from one (1) drilled well. Water is distributed throughout the community by a storage tank, a booster pump station, and distribution piping consisting of 2 inch pipe. The total Source/Pump Capacity is equal to 43,200 gpd. Current usage is approximately 6,432 gpd. This system supplies water to the Delaney Court Subdivision.

#### **SOURCE WATER ASSESSMENTS**

Under a new program being conducted by VDH, a detailed source water assessment will be conducted within the next few years to find ways to better protect our water sources. After the assessment is conducted, we will provide you with information about potential sources of contamination and measures to reduce or eliminate the sources of contamination.

#### **QUALITY OF YOUR DRINKING WATER**



Your drinking water is routinely monitored for a variety of substances in accordance with Federal and State Regulations. The table shows the results of our monitoring for the period of January 1<sup>st</sup> to December 31<sup>st</sup>, 2001. This table lists only those substances that had some level of detection. Many others have been tested for but were not present or were below the level of detection for the lab equipment. Most of the results in the table are from testing performed in 2001. However, the state allows us to monitor for some substances less than once per year because the concentrations of these substances do not change frequently. Some of our data, though accurate, is more than one year old.

Schools and Civic Organizations may arrange a group tour by contacting the Spring Hollow Water Treatment Facility at 380-2687. Additionally the first week of May each year an open house is held at the Spring Hollow Water Treatment Facility and Reservoir featuring tours, demonstrations, and refreshments.

**This Drinking Water Quality Report was prepared by:**

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Please contact us if you have questions.

## DEFINITIONS

In the table and elsewhere in this report you will find many terms and abbreviations you might not be familiar with. The following definitions are provided to help you better understand these terms:

*Ppm or mg/l - Parts per million or Milligrams per liter* - one part per million corresponds to one minute in two years or a single penny in \$10,000.

*Ppb - Parts per billion or Micrograms per liter* - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

*Ppt or nanograms/l- Parts per trillion or Nanograms per liter* - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

*pCi/L - Picocuries per liter* - picocuries per liter is a measure of the radioactivity in water.

*NTU Nephelometric Turbidity Unit* - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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

*TT -Treatment Technique* - a required process intended to reduce the level of a contaminant in drinking water.

*MCL - Maximum Contaminant Level* - 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.

*MCLG - Maximum Contaminant Level Goal* - 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.

*Variances and exemptions* - state or EPA permission not to meet an MCL or a treatment technique under certain conditions

### Hardness Classification

0 - 75	.....	Soft
75 - 150	.....	Moderate
150 - 300	.....	Hard
Above 300	.....	Very Hard

Substance	Units	Ideal Goals EPA'S MCLG	Highest Level Allowed EPA'S MCL	(Range) Average							Source of Substance
				Spring Hollow	Carvins Cove	East County (LaBellevue)	Salem	Long Ridge	Martin Creek	Delaney Court	
<b>Microbiological</b>											
Total Coliforms	Present/Absent	0% of samples	5% of samples	0	0	0	0	0	0	0	Naturally present in the environment
Fecal Coliforms	Present/Absent	0% of samples	A routine and a repeat sample are total coliform positive, and one is also fecal coliform or E. coli positive	0	0	0	0	0	0	0	Human and animal fecal wastes
<b>Inorganic Substances</b>											
Chlorate	ppm		1	(<0.020-0.045) <0.10							
Chloride	ppm		250	9.3	(5.1-8.8) 8.8	5.3	(11.0-15.8) 13.4	(8.3-11.6) 9.95	(<5-32.8) 19.3	6.9	Naturally occurring in the environment
Chlorine	ppm		4.0 MDRL	(0.9-1.3) 1.1	(0.78-2.2) 1.50	0.8	(0.72-3.23) 1.34	(0.6-1.0) 0.6		(0.2-0.8) 0.6	Required disinfectant added during treatment process to eliminate bacteria
Chlorite	ppm		1.0	(0.070-0.104) 0.087							
Color	Color Units		15	<5	(0.0-16.0) 4.0	<5		<5	<5	<5	Physical Property of water
Corrosive		Non Corrosive		Moderately Corrosive	Highly Corrosive	Non Corrosive	Moderately Corrosive	Moderately Corrosive	Moderately Corrosive	Highly Corrosive	Physical Property of water
Fluoride	ppm	4	4	(0.9-1.1) 0.9	(0.41-1.6) 1.12	<0.20	(0.33-1.47) 0.90	(0.73-1.0) 0.87	(0.31-1.44) 0.67	0.53	Erosion of natural deposits; Discharge from fertilizer and aluminum factories; <b>Water additive which promotes strong teeth</b>
Iron	ppb		300		(0.0-40) 10						Erosion of natural deposits
Total Nitrates & nitrite (as N)	ppm	10	10	0.36	(0-0.17) 0.17	0.24	(0.41-0.42) 0.42	<0.05	(<0.05-0.83) 0.16	1.85	Runoff from fertilizer use, leaching from septic fields, Erosion of natural deposits
Manganese	ppb		50.0		(0.0-80) 20			(0-10) 5	(<0.01-0.078) 0.019		Erosion of natural deposits
pH	pH units		6.5-8.5	(7.4-8.1) 7.8	(7.1-8.6) 8.0	7.86	(6.5-8.4) 7.7	(6.35-6.40) 6.38	(6.10-6.32) 6.25	(6.17-7.15) 6.71	
Sodium	ppm		No limits established		(7.07-7.88) 7.07		(<5.0-5.66) <5.0	(12.9-14.0) 13.5	(12.3-21.4) 13.2	8.91	Naturally occurring in the environment
Sulfate	ppm		250	20.2	(8.1-20.3) 20.3		(15.7-46.0) 30.9	(11.5)	17.2-30.7) 28.2	5.5	
Turbidity	NTU		0.5 *5.0 Operational limit for groundwater	(0.03-0.13) 0.08	(0.02-0.73) 0.09	0.20	(0.03-0.44) 0.06	(0.21-0.84) 0.53*	(0.32-1.24) 0.64	*0.57	Soil runoff
Zinc	ppm		5.0						(<0.2-0.45) <0.2		Erosion of natural deposits
<b>Lead and Copper</b> Most recent monitoring period											
Lead	ppb	0.0	AL = 15	5 (0 samples exceeded AL)	6 (0 samples exceeded AL)	7.0 (0 samples exceeded AL)	5.0 (0 samples exceeded AL)	10.0 (0 samples exceeded AL)	8.0 (0 sample exceeded AL)	3.0 (0 sample exceeded AL)	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	ppm	1.3	AL = 1.3	0.3 (0 samples exceeded AL)	0.21 (0 samples exceeded AL)	0.10 (0 samples exceeded AL)	.18 (0 samples exceeded AL)	0.22 (0 samples exceeded AL)	0.12 (0 sample exceeded AL)	<0.10 (0 samples exceeded AL)	Corrosion of household plumbing systems; Erosion of natural deposits

