

Quality

Our tap water, provided by Winchester Public Utilities, is safe to drink and is of higher quality than required by all state and federal standards for drinking water. This same water is in compliance with all required water quality monitoring. The Safe Drinking Water Act (SDWA) has been the primary regulation to ensure that public health and safety is protected in drinking water supplies. Although this information has been available to anyone requesting it, this water quality report, part of the provisions of the Safe Water Drinking Act Amendments in 1996, is intended to share with you how well we are doing.

Every employee of Winchester Public Utilities is committed to producing drinking water that is of the highest quality. Our state-certified laboratory, located at the Percy D. Miller Water Treatment Plant, continuously analyzes water quality throughout the treatment process to ensure superior quality drinking water is delivered to our customers.

Reliability

Your drinking water is surface water obtained from the North Fork of the Shenandoah River. This river supplies the City of Winchester with its daily water requirement averaging 6.52 million gallons per day for 2011. The treatment plant has been in operation since 1955 and has been upgraded as

required to meet new regulations and water demands. The water goes through a six-step process before it becomes finished water and is pumped through 125 miles of pipe to you, our customer.

Winchester Public Utilities operates 24 hours per day, seven days per week to produce a reliable supply of superior quality drinking water, as well as to ensure sufficient water quantity, customer satisfaction and environmental integrity of our source water. Should you have any questions or concerns, please contact us at **540-667-1815** or visit our web site at: **www.winchester.va.gov**.

Source Water Assessment

Source water assessments for the City of Winchester were completed by the VDH on April and September 10, 2002. These assessments determined that the city's primary water source, North Fork Shenandoah River, may be susceptible to contamination because it is a surface water exposed to varying concentrations and changing hydrologic, hydraulic, and atmospheric conditions that promote migration of contaminants from land use activities of concern within its assessment area. More specific information may be obtained by contacting 540-667-1815 ext 1409.

What are we doing?

The City is nearing the completion of constructing major upgrades to the Water Treatment Plant. These upgrades were necessary to meet environmental regulations and to make the 50-year old facility more reliable. The cost of this project is \$25 million and construction started in January 2010.

The City is also continuing with the on-going effort of replacing some of the oldest water mains within the United States. The City is currently replacing numerous water mains in the north end of the City and starting on a project to replace the water main on Amherst Street between the Museum of the Shenandoah Valley and the western City limit. During the next year, the City will also be replacing the water mains on Indian Alley and the Pedestrian Mall in downtown.

This report is prepared and sent to you as required by the United States Environmental Protection Agency.

Drinking Water & Your Health

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 healthcare providers. USEPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from EPA's **Safe Drinking Water Hotline (800-426-4791)** or by visiting their website (www.epa.gov/safewater).

Cryptosporidium is a microbial pathogen found in surface waters throughout the United States. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, an abdominal infection characterized by nausea, diarrhea, and abdominal cramps. *Cryptosporidium* may be spread through means other than drinking water. Most healthy individuals can overcome the disease within a few weeks, however immuno-compromised people are at risk of developing a potentially life-threatening illness. In November 2003, RWSA began a voluntary, two year, 48 sample study to determine the occurrence of *Cryptosporidium* in the raw sources for each of the three Urban Area WTPs. Results of monitoring during 2003, 2004 and 2005 do reveal the occasional presence of *cryptosporidium* in very small concentrations (<0.05 organisms per liter) in our reservoirs. Although filtration removes *Cryptosporidium*, the most commonly used filtration methods cannot guarantee 100% removal. The RWSA makes every effort to optimize the filtration and disinfection unit processes at all the WTPs to ensure the greatest degree of *Cryptosporidium* removal/inactivation.

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:

- ① Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- ② 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.
- ③ Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- ④ 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 stormwater runoff, and septic systems.
- ⑤ 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 public health.

The following table lists only those substances that had some level of detection in the City's water. All of the results in the table were from testing

Table of Definitions

Maximum Contaminant Level, or MCL—The highest level of contaminant level allowed in drinking water. MCLs are set as close to the MCLGs as feasible during the best available treatment technology.

Maximum Contaminant Level Goal, or MCLG—The level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.

Nephelometric Turbidity Unit, or NTU—A measure of water clarity.

Picocuries per liter, or pCi/l—A measure of radioactivity in water.

Milligrams per liter, or Mg/l—One milligram per liter corresponds to 1 drop in 16 gallons water. (One milligram per liter is the same as one part per million parts.)

Parts per billion, or ppb—One part per billion corresponds to 1 drop in 15,750 gallons.

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

Treatment Technique, or TT—A required process intended to reduce the level of a contaminant in drinking water.

done during 2010. However, the State Health Department allows us to monitor for some substances less than once per year because their concentrations do not change frequently. Some of our data, although accurate, is over one year old. Over 100 substances were sampled for, but were either not present or below the detection levels. All drinking water, including bottled water, may reasonably be expected to contain small amounts of some substances. The presence of contaminants does not necessarily indicate that the water presents a health risk. More information about contaminants and potential health effects can be obtained by calling the United States Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791. You may also contact the Virginia Department of Health, Office of Water Programs, at (540) 463-7136.

Turbidity

Contaminant	MCLG	MCL	Highest Single Level Found	Unit Measurement	Lowest Monthly %<0.3 NTU	Violation	Sample Date	Typical Source of Contamination
Turbidity ¹	NA	TT	0.06	NTU	100	NO	08/09/11	Soil Runoff

(1) Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality and the effectiveness of our filtration and disinfection process.

Total Organic Carbon

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Sample Date	Typical Source of Contamination
Total Organic Carbon ²	NA	TT	1.78 Yearly Avg. 1.00-2.67 Range	Ratio of Actual to Required Removals	NO	12/2011	Naturally Present in Environment

(2) Total Organic Carbon (TOC) has no health effects but provides formation medium for disinfection by-products. These by-products include Trihalomethanes (TTHM) and Haloacetic acids (HAA5).

Inorganic Contaminants

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Sample Date	Typical Source of Contamination
Nitrates	10	10	1.52	Mg/l	NO	02/16/11	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Barium	2	2	0.030	Mg/l	NO	02/16/11	Erosion of natural deposits; Discharge from metal refineries; Discharge of drilling wastes.
Fluoride	4	4	Avg. 0.86 Range 0.15-1.11	Mg/l	NO	12/2011	Erosion of natural deposits; Discharge from fertilizer and aluminum factories; Water additive, which promotes strong teeth.

Disinfectant and Disinfection Byproduct Contaminants

Contaminant	MCLG	MCL	Level Found	Unit Measurement	Violation	Sample Date	Typical Source of Contamination
Total Trihalomethanes (TTHM)	0	80	Avg. 22.03 Range 7.5-50	Ppb	NO	12/2011	By-product of water chlorination.
Halo Acetic Acids (HAA5)	0	60	Avg. 19.63 Range 9.7-40	Ppb	NO	12/2011	By-product of water chlorination.
Contaminant	MRDLG	MRDL	Level Found	Unit Measurement	Violation	Sample Date	
Residual Chlorine	4	4	Avg. 2.17 Range 0.3-3.6	Mg/l	NO	Monthly	

Lead and Copper

Contaminant	MCLG	MCL	Level Found	Unit Measurement	AL Exceeded	Samples >AL	Sample Date	Typical Source of Contamination
Lead	0	AL=15	2.90	Ppb	NO	1	06/2011	Corrosion of household plumbing systems; Erosion of natural deposits.
Copper	1.3	AL=1.3	0.445	Mg/l	NO	0		

*ND = Non-Detectable

No Coliform Bacteria Found A minimum of 40 different system samples from 30 different locations throughout the collection system were analyzed for Fecal Coliform and E. Coli bacteria each month. The results of these analyses found NO presence of either type of bacteria in any sample collected.

Lead and Copper - 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. Winchester Public Utilities 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 15 to 30 seconds or until it becomes cold or reaches a steady temperature 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 exposure is available from the United States Environmental Protection Agency's Safe Drinking Water Hotline at (800) 426-4791 or at <http://www.epa.gov/safewater/lead>.