

Annual Drinking Water Quality Report **Town of Gate City**

INTRODUCTION

This Annual Drinking Water Quality Report for calendar year 2006 is designed to inform you about your drinking water quality. Our goal is to provide 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. The quality of your drinking water must meet state and federal requirements administered by the Virginia Department of Health (VDH).

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:

Mark Jenkins, Mayor, Town of Gate City, 176 E. Jackson Street, Gate City, VA 24251 Phone: (276) 386-3831

The times and location of regularly scheduled board meetings are as follows:

Second Tuesday of each month, 6:00 PM, Gate City Town Hall, 185 E. Jackson Street, Gate City, VA
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GENERAL INFORMATION

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.

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 OF YOUR DRINKING WATER

The Town of Gate City uses two sources for drinking water. The sources of your drinking water are surface water as described below:

- The source of supply for the Town of Gate City water treatment plant is Big Moccasin Creek. The raw water intake is adjacent to the water treatment plant.
- Scott County PSA/Moccasin Gap water treatment plant. The source of supply for the Scott County PSA/Moccasin Gap water treatment plant is also Big Moccasin Creek with the intake located on Filter Plant Road in Gate City, Virginia.

The Virginia Department of Health conducted a source water assessment of our system during 2002. The Big Moccasin Creek was determined to be of high susceptibility to contamination using the criteria developed by the state in its approved Source Water Assessment Program. The assessment report consists of maps showing the source water assessment area, an inventory of known land use activities of concern, and documentation of any known contamination with the last 5 years. The report is available by contacting Gate City Town Hall at the phone number or address given elsewhere in this drinking water quality report.

DEFINITIONS

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The table on the next page shows the results of our monitoring for the period of January 1st to December 31st, 2006. 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:

Maximum Contaminant Level, or MCL - 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.

Maximum Contaminant Level Goal, or 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.

Non-detects (ND) - lab analysis indicates that the contaminant is not present

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

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

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

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

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

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

Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is a measure of the clarity, or cloudiness, of water. Turbidity in excess of 5 NTU is just noticeable to the average person. Turbidity is monitored because it is a good indicator of the effectiveness of our filtration system.

Maximum Residual Disinfectant Level Goal or MRDLG – the level of 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 contaminants.

Maximum Residual Disinfectant Level or 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.

WATER QUALITY RESULTS

Regulated Contaminants

Contaminant (units)	MCLG	MCL	Level Detected	Violation (Y/N)	Range	Date of Sample	Typical Source of Contamination
Nitrate + Nitrite (ppm)	10	10	1.38	N	N/A	01/30/2006	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Fluoride (ppm)	4	4	1.02	N	N/A	01/30/2006	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Alpha Emitters (pCi/l)	0	15	0.4	N	N/A	02/25/2002	Erosion of Natural Deposits
Combined Radium (pCi/l)	0	5	0.4	N	N/A	02/25/2002	Erosion of Natural Deposits
Chlorine (ppm)	MRDLG = 4	MRDL = 4	2.57	N	0.6 – 2.67	2006	Water additive used to control microbes
Total Organic Carbon	N/A	TT, met when ≥ 1 or alternate criteria is met*	0.97	N	1.0 – 1.45	2006	Naturally present in the environment
HAA5s [Haloacetic Acids] (ppb)	N/A	60	70	Y	23 – 64	2006	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes] (ppb)	N/A	80	51	N	16 – 99	2006	By-product of drinking water disinfection
Turbidity (NTU)	N/A	TT, 1 NTU Max	7.4	Y	0.02 – 7.4	2006	Soil runoff
		TT, ≤ 0.3 NTU 95% of the time	99.8%	N	N/A		

* Scott County PSA/Moccasin Gap had an average TOC Removal Ratio of 0.97 for the minimum four quarter running annual average of 2006. However, the four quarter running annual average treated water TOC was 1.36 mg/L for 2006. Therefore, your waterworks is in compliance with the treatment technique for control of disinfection byproduct precursors by meeting one of the alternative compliance criteria – having treated water TOC < 2.0 mg/L calculated quarterly as a running annual average.

Lead and Copper Contaminants

Contaminant (units)	MCLG	Action Level	90 th Percentile Level Detected	Date of Sampling	# of Sampling Sites Exceeding Action Level	Typical Source of Contamination
Lead (ppb)	0	AL = 15	< 5	09/27/2005	0	Corrosion of household plumbing system; Erosion of natural deposits
Copper (ppm)	1.3	AL = 1.3	0.106	09/27/2005	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

The water quality results in the above tables are from testing done in 2006. However, the state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, is more than one year old.

Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

MCL's are set at very stringent levels by the U.S. Environmental Protection Agency. In developing the standards EPA assumes that the average adult drinks 2 liters of water each day throughout a 70-year life span. EPA generally sets MCLs at levels that will result in no adverse health effects for some contaminants or a one-in-ten-thousand to one-in-a-million chance of having the described health effect for other contaminants.

MCL VIOLATION INFORMATION

During the first and second quarters of 2006, the Town of Gate City waterworks exceeded the four quarter Primary Maximum Contaminant Level running annual average of 60 ppb for Total Haloacetic Acids (HAA5) contained in the Commonwealth of Virginia/State Board of Health Waterworks Regulations. The results indicate that the four quarter running annual average HAA5 concentration was 65 ppb for the first quarter 2006 and 70 ppb for the second quarter 2006. Disinfection of public drinking water is necessary to prevent waterborne diseases such as typhoid and cholera. However, the disinfectants themselves can react with naturally occurring material in the source water to form unintended byproducts which may pose a health risk. Haloacetic Acids are one of the known byproducts of the drinking water disinfection process that have a primary maximum contaminant level and this waterworks is required to monitor the distribution system on a quarterly basis. Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer. Samples were collected in the Third and Fourth Quarters of 2006 to determine compliance with the Waterworks Regulations. Both quarters were less than the four quarter Primary Maximum Contaminant Level running annual average of 60 ppb. Subsequent monitoring and compliance determination will continue with the collection of one sample every calendar quarter.

OTHER VIOLATION INFORMATION

The Commonwealth of Virginia/State Board of Health Waterworks Regulations require waterworks, supplied by a surface water source with conventional filtration treatment, to conduct continuous monitoring of turbidity for each individual filter, using an approved method. Waterworks must record the results of individual filter monitoring at least every 15 minutes. Our records indicate that the Town of Gate City waterworks failed to collect and record the required number of samples in the compliance period starting January 1, 2006 and ending January 31, 2006. The Town of Gate City did install continuous turbidity monitoring equipment on January 5, 2006 and installed recording equipment on January 31, 2006.

Our records indicate that the Town of Gate City failed to provide adequate treatment and failed to meet a turbidity limit in accordance with the Commonwealth of Virginia Waterworks Regulations. Water being served to our consumers during the morning of June 26, 2006, exceeded the filtered water turbidity limit of 1 NTU. This occurred after a chemical feed pump failed and the water was inadequately treated causing the filtered water turbidity to rise above 1 NTU. The following actions were taken to address the problem. The chemical feed pump was repaired and placed back into service. The inadequately treated water was removed from our water treatment plant and flushed from our distribution system. Before the boil water notice was lifted, twenty bacteriological tests were taken from various locations in our distribution system and verified that the water was safe to drink.

Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.