

# 2004 Annual Water Quality Report

Quality Water, Quality Service

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Important information  
on your drinking water

## Quality First

The Town of Broadway's goal is to produce the highest quality of drinking water for its customers. Water samples are routinely collected from the distribution system for the purpose of checking quality and identifying potential problems. The treatment plant is constantly maintained, evaluated and upgraded to meet and exceed government regulations. Through planning, efficient operation, and excellent customer service, we will continue to supply the best quality drinking water possible at an economical price.

If you have questions about this report, or want additional information about any aspect of your drinking water, please contact:

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### BACKGROUND 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 storm water runoff, residential uses, and many other types of activities. Surface water is treated to make it safe for drinking, while groundwater may or may not have 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.

#### WHERE DOES THE WATER COME FROM?

The Town's treatment facility receives water from the North Fork of the Shenandoah River upstream from its confluence with Linville Creek. Linville Creek may be utilized as a back up supply at any time, but is typically used only during extremely dry conditions.

#### HOW IS THE WATER TREATED?

Treatment begins with coagulation where the addition of polyaluminum chloride causes the small particles in the water to adhere to one another and grow

in size. Flocculation occurs next, meaning the water is slowly mixed, causing the particles to grow larger. At this point, a disinfectant, chlorine is added. The water then passes into settling basins where the larger particles settle to the bottom of the basin. Filters, containing sand and anthracite, finish the removal of particles not removed by settling. Before distribution, water is again disinfected and soda ash is added for corrosion control. Finally, fluoride is added to the water for dental protection.

The water is then tested for chlorine, pH, turbidity, alkalinity, hardness, and fluoride. Four different procedures: jar test, equation, pilot filter, and streaming current monitor, can be utilized to determine the proper chemical dosages.

Two finished water pumps, each rated at 350 g.p.m., deliver the final product to the distribution system. Storage in the distribution system is provided by one 200,000 gallon elevated storage tank, one 255,000 gallon ground storage tank, and one 500,000 gallon ground storage tank.

#### SOURCE WATER ASSESSMENT

A source water assessment has been completed by the Virginia Department of Health. The assessment determined that the Town's sources may be susceptible to contamination because it is located in an area that promotes migration of contaminants from land use activities of concern. This is true for almost all surface water. More specific information may be obtained by contacting the Town Office or water plant.

### SPECIAL HEALTH INFORMATION

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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).

#### ABOUT THE PRESENCE OF LEAD

**Lead-** Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. We only had one of five samples indicate the presence of lead. This is not a violation. In addition, lead originates from older plumbing within houses, and not the water source.

#### VIOLATION INFORMATION

The Town did not have any water quality violations during 2004 and was in full compliance with all monitoring and reporting requirements.



**WHAT IS IN THE WATER?**

Your drinking water is routinely monitored according to Federal and State Regulations for a variety of contaminants. The following tables show the results of our tests.

The following tests are for the period of January 1 to December 31, 2004.

Most of the results in the tables are from testing done in 2004. However, the state allows monitoring 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.

The water plant personnel constantly monitor for various contaminants in the water supply to meet all regulatory requirements. The tables list only those contaminants that had some level of detection. Many other contaminants have been analyzed but were not present or are below detection limits. In October of 2002 the water was tested for Synthetic and Volatile Organic contaminants and none were detected.

Maximum Contaminant Levels, (MCL's) are set at very stringent levels by the U.S. Environmental Protection Agency (EPA). 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 MCL's at levels that will result in no adverse health effects for most people.

**DEFINITIONS**

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

*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.

*Maximum Contaminant Level, or MCL* - the highest level of a contaminant that is allowed in drinking water as close to the MCLGs as feasible using the best available treatment technology.

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

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

*Parts per trillion (ppt) or Nanogram per liter (nanogram/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.

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

*Variations and exemptions* - State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

**MICROBIOLOGICAL**

CONTAMINANT	MCLG	MCL	LEVEL FOUND	UNIT MEASURE	VIOLATION	DATE OF SAMPLE	LIKELY SOURCE
Total Coliform Bacteria	0	Presence of Coliform bacteria in >1 sample per month	None	Presence or Absence	No	2 samples per month	Naturally present in the environment

**NITRATES AND FLUORIDE**

CONTAMINANT	MCLG	MCL	LEVEL FOUND	UNIT MEASUREMENT	VIOLATION	DATE OF SAMPLE	LIKELY SOURCE
Nitrates	10	10	2.26	ppm	No	8/04	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Fluoride	4	4	Average 0.93	ppm	No	Daily	Erosion of natural deposits; Discharge from fertilizer and aluminum factories; Water additive which promotes

**UNREGULATED CONTAMINANTS**

CONTAMINANT	MCLG	MCL	LEVEL FOUND	UNIT MEASUREMENT	VIOLATION	DATE OF SAMPLE	LIKELY SOURCE
Chloroform	0	100	12	ppb	No	10/03	By-product of drinking water chlorination
Bromodichloromethane	0	100	2.9	ppb	No	10/03	By-product of drinking water chlorination
Methyl t-butyl ether (MTBE)	0	100	0	ppb	No	10/03	By-product of drinking water chlorination

**DISINFECTION BY-PRODUCTS**

CONTAMINANT	MCLG	MCL	Level Found	Unit Measurement	Violation	Date of Sample	Likely Source
TTHM's ( Total Trihalomethanes)	0	80	Average:41	ppb	No	Quarterly 2004	By-Product of Drinking Water chlorination
(HAA)Haloacetic acids	NA	60	Average:32	ppb	No	Quarterly 2004	By-Product of Drinking Water ChloContaminant rination
(TOCs) Total Organic Carbon	NA	TT	Average: 1.36	ppb	No	Quarterly 2004	Naturally present in the environment.

**TURBIDITY**

CONTAMINANT	MCLG	MCL	HIGHEST SINGLE LEVEL	UNIT MEASUREMENT	LOWEST MONTHLY % MEETING 0.5NTU	VIOLATION	DATE OF SAMPLE	LIKELY SOURCE
Turbidity	n/a	TT=1 NTU	.2513	NTU	100	No	Daily	Soil Runoff

**LEAD AND COPPER**

CONTAMINANT	MCLG	MCL	AMOUNT DETECT 90%tile	UNIT MEASUREMENT	VIOLATION	DATE OF SAMPLE	LIKELY SOURCE
Lead	0	AL= 15	15 Range:<1 to 16 One of ten samples exceeded the AL	ppb	No	9/02	Corrosion of household plumbing systems; Erosion of natural deposits
Copper	1.3	AL= 1.3	.120 Range:<0.05 to 0.19 None of the ten samples exceeded the A:L	mg/l	No	9/02	Corrosion of household plumbing systems; Erosion of natural deposits

**GROSS ALPHA AND BETA**

CONTAMINANT	MCLG	MCL	LEVEL FOUND	UNIT MEASUREMENT	VIOLATION	DATE OF SAMPLE	LIKELY SOURCE
Gross Alpha	5	5	0.5	pCi/L	No	12/01	Erosion of natural deposits
Gross Beta	50	50	2.0	Ci/L	No	12/01	Erosion of natural deposits

This Water Quality Report was prepared by Doug Puffenbarger, Water Plant Superintendent for the Town of Broadway. Please call if you have questions (896-3541).