

# 2008 Annual Water Quality Report

Quality Water, Quality Service

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**Town of Broadway**  
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Important information  
on your drinking water

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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:

Quality First

## 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. The Town also purchases water from the Food Processor's Water Co-op.

## 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.

## QUALITY OF YOUR DRINKING WATER

Your drinking water is routinely monitored according to Federal and State Regulations for a variety of contaminants. The tables that follow show the results of our monitoring for the period of January 1<sup>st</sup> through December 31<sup>st</sup>, 2009.

## LEAD CONTAMINANTS

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. We are respon-

sible 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 2 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 on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

## Cryptosporidium Monitoring - Food Processors Water Coop

Cryptosporidium is a microbial pathogen found in surface water throughout the US. Although filtration removes Cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.

## WHAT IS IN THE WATER?

The results in the table are from testing done in 2008 and 2009. 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, may be more than one year old.

We constantly monitor for various contaminants in the water supply to meet all regulatory requirements. The table lists only those contaminants that had some level of detection. Many other contaminants have been analyzed but were not present or were below the detection limits of the lab equipment.

Maximum Contaminant Levels (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 MCL's 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.

### 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:

*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.

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

*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.

*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.

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

BDL- Below Detection Limit

### VIOLATION INFORMATION

We did not have any violations during the year 2009.

## INORGANIC CONTAMINANTS

Contaminant / Unit of Measurement	MCLG	MCL	Level Found / Range	Violation	Date of Sample	Typical Source of Contamination
Turbidity NTU	NA	TT=1 NTU Lowest monthly percent meeting <0.3 NTU – 95 %	Highest: 0.148 Range: 0.017 to 0.148 NTU Includes Food Processors Water	No	Daily	Soil runoff
Fluoride ppm	4	4	Highest: 1.25 Range: 0.84 to 1.25	No	Daily	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Contaminant / Unit of Measurement	MCLG	MCL	Level Found / Range	Violation	Date of Sample	Typical Source of Contamination
Nitrate ppm	10	10	Highest: 1.16 Range: 1.11 to 1.16 Includes Food Processors Water	No	April and July 2009	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits

## RADIOLOGICAL CONTAMINANTS

Contaminant / Unit of Measurement	MCLG	MCL	Level Found / Range	Violation	Date of Sample	Typical Source of Contamination
Combined Radium pCi/L	0	5	Highest: 0.8 Range: .03 to 0.8 Includes Food Processors Water	No	January and October 2009	Erosion of natural deposits
Alpha emitters pCi/L	0	15	Highest: 1.12 Range: .6 to 1.12 Includes Food Processors Water	No	January and October 2009	Erosion of natural deposits
Gross Beta pCi/L	0	50	Highest: 4.1 Range: 2.5 to 4.1 Includes Food Processors Water	No	January and October 2009	Decay of natural and man-made deposits

## LEAD & COPPER

Contaminant / Unit of Measurement	MCLG	MCL	Level Found / Range	Exceedance	Date of Sample	Typical Source of Contamination
Copper ppm	1.3	AL=1.3	0.051 (90 <sup>th</sup> percentile) Range: 0.009 to 0.051 None of the five samples collected exceeded the AL. Food Processors Water	No	September 2008	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead ppb	0	AL=15	6 (90 <sup>th</sup> percentile) Range: ND to 0.9 None of the five samples collected exceeded the AL. Food Processors Water	No	September 2008	Corrosion of household plumbing systems; Erosion of natural deposits

## DISINFECTION BY-PRODUCTS

Contaminant/Unit of Measurement	MCLG	MCL	Level Found	Violation	Date of Sample	Typical Source of Contamination
TTHM's (Total Trihalomethanes) ppb	0	80	Average: 49 Range: 15 to 78	No	Quarterly 2009	By-product of drinking water chlorination
Haloacetic acids (HAAs) ppb	NA	60	Average: 18 Range: ND to 37	No	Quarterly 2009	By-product of drinking water chlorination

## DISINFECTION BY-PRODUCTS PRECURSORS

Contaminant/Unit of Measurement	MCLG	MCL	Level Found	Violation	Date of Sample	Typical Source of Contamination
(TOCs) Total Organic Carbon ppb	NA	TT	Highest: 2.16 Range: 0.76 to 2.16 Includes Food Processors Water	No	Monthly 2009	Naturally present in the environment

## LEAD & COPPER

Contaminant / Unit of Measurement	MCLG	MCL	Level Found / Range	Exceedance	Date of Sample	Typical Source of Contamination
Lead ppb	0	AL= 15	4.0 (90 <sup>th</sup> percentile) Range: < BDL to .009 None of the ten samples collected exceeded the AL. Town of Broadway	No	September 2008	Corrosion of household plumbing systems; Erosion of natural deposits
Copper ppm	1.3	AL=1.3	0.050 (90 <sup>th</sup> percentile) Range: < 0.009 to 0.067 None of the ten samples collected exceeded the AL. Town of Broadway	No	September 2008	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives

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