

## Quality Begins At Our Sources

It's very easy to see why our drinking water is considered some of the finest available anywhere in the United States. Our primary source of water is located in Black Mountain in eastern Buncombe County where the water flows from pure mountain springs and streams into lakes known as the North Fork and Bee Tree Reservoirs. They are located in Black Mountain and Swannanoa, respectively. These pristine lakes are surrounded by 22,000 acres of highly protected mountain forests owned by the City of Asheville.

Our secondary source of water is the Mills River, which was put into operation in late 1999. The Mills River Watershed is very different from our watershed in the east; however, it still provides a good source of water. The watershed covers 47,440 acres in Henderson and Transylvania counties, with approximately 75 percent of it being in the Pisgah National Forest. It is a mixture of forest, farmland, and low density development. Although the Mills River is not pristine, it has the advantage of providing our region with a natural resource that has multiple uses, including being an invaluable drinking water source, trout fishery, fish and wildlife habitat, and recreational resource.



(SWAP) conducted an assessment of the drinking water sources across North Carolina. The purpose of the assessment was to determine the susceptibility of each drinking water source to Potential Contaminant Sources (PCSs). The results of the assessment are available in SWAP Assessment Reports that include maps, background information and a relative susceptibility rating of Higher, Moderate, or Lower. The relative susceptibility rating of each source for the City of Asheville is determined by combining the contaminant rating (number and location of PCSs within the watershed) and the inherent vulnerability rating (geologic characteristics of the surface water source and the watershed area). The assessment findings are summarized below.

It is important to understand that a susceptibility rating of Moderate does not imply poor water quality, only the systems' potential to become contaminated by PCS's in the assessment area. The complete SWAP Assessment report for the City of Asheville Water Resources Department may be viewed on the Web at: <http://www.deh.enr.state.nc.us/pws/swap>. To obtain a printed copy of this report, please mail a written request to: Source Water Assessment Program – Report Request, 1634 Mail Center, Raleigh NC 27699-1634, or email request to [swap@ncmail.net](mailto:swap@ncmail.net). Please indicate the system name (Asheville-Buncombe-Henderson), PWSID (01-11-010), and provide your name, mailing address and phone number. If you have any questions about the

Susceptibility of Sources to Potential Contaminant Sources (PCSs)	
Source Name	Susceptibility Rating
North Fork Reservoir	Lower
Mills River	Moderate

(Found in SWAP Report Table 2)

SWAP report please contact the Source Water Assessment staff by phone at 919-715-2633.

## We Optimize Quality With Careful Treatment

We are proud of the exceptional quality of water that flows through our system to your household or business daily. We treat it very carefully at our state-of-the-art water treatment plants to enhance its quality. The North Fork Water Treatment Plant (built in 1955 and later expanded to a current capacity of 31 million gallons per day, mgd) operates using a direct filtration process. Lake water from the pristine North Fork Reservoir is pre-chlorinated and mixed with aluminum sulfate to coagulate suspended particles that come from the lake. After mixing, the water flows through the filters, which remove coagulated particles. Following filtration, the pH is adjusted, fluoride is added for dental health purposes, corrosion inhibitors zinc orthophosphate and sodium bicarbonate are added, and the water is once again chlorinated for further disinfection.

The 7 mgd Mills River Water Treatment Plant was designed to produce drinking water that is comparable to the high quality water that comes from our North Fork Reservoir. The treatment process is more complex than at the North Fork facility; and includes ozone treatment for disinfection. Water is taken from the Mills River and pumped first to an untreated water storage reservoir where suspended materials are settled out. The settled water is pumped to the pre-ozonation system to begin disinfection; it flows to the rapid mixers where chemicals are added to produce suspended particles; it moves into settling basins where the heavy particles settle out; and it travels back to the ozonation system for further disinfection. It then passes through filters containing granular activated carbon, the pH is adjusted, and fluoride is added. Finally, corrosion inhibitors and chlorine are added to enhance water quality in the distribution system.

(continued inside)

## Source Water Assessment Program (SWAP) Results

The North Carolina Department of Environment and Natural Resources, Public Water Supply Section, Source Water Assessment Program



## Our Commitment To Quality

We are pleased to present to you this year's Annual Drinking Water Quality Report for the City of Asheville Water Resources Department. This report is a snapshot of last year's water quality. Congress and the EPA have mandated this report and to a large extent its format and content. The EPA wants to be sure every community knows what is in their drinking water. We agree. Water Quality is never taken for granted by our customers or by those of us who work everyday to ensure the best quality of water possible. Our charge is to present this information in a way that is understandable and gives you confidence in the quality of water supplied to your home or place of business.

This Annual Water Quality Report provides details about the quality of your water, where it comes from, how it is treated, and how you can conserve this precious resource. You may expect an update of this report each year.



The City of Asheville Water Resources Department is required to test for over 128 constituents (substances) to make sure that the water you drink is safe. In 2007, only 13 of these substances were detected and they were well within safe levels - making our drinking water one of the best sources of water in the country. The table on the following page lists these 13 substances.

### Customer Input Welcome

We invite our customers to learn more about the City of Asheville and the Water Resources Department. Customers are welcome to attend regular meetings of the Asheville City Council in the City Council Chamber located on the second floor of the City Hall Building at 70 Court Plaza. Formal meetings are held on the second and fourth Tuesday of every month beginning at 5:00 pm. The public is invited to attend. Replays of City Council meetings may be viewed on Charter Channel 11 on Wednesdays and Fridays at 6:00 pm and Saturdays and Sundays at 9:00 am. Questions regarding water quality, water bills, or any other questions can be answered by calling the City's Customer Service Division at 251-1122. You can also explore our web page on the Internet at [www.ashevilenc.gov/water](http://www.ashevilenc.gov/water).

### ISO 14001: Our Commitment to the Environment

In 2004, the Water Resources Department became ISO 14001 certified by the National Sanitation Foundation (NSF) proving that we had implemented practices and procedures to do our part to protect the environment. In 2007, we were re-certified by NSF showing that our commitment to protect the environment continues to be a priority for our department. We are committed to ensuring environmental quality through:

- Continuous Improvement in our product, systems, and processes to maximize customer satisfaction;
- Communication among and between our staff, customers, vendors, contractors, and governing board;
- Compliance with relevant federal, state, and local environmental regulations;
- Commitment to a clean, healthy environment through prevention of pollution.

The City of Asheville Water Resources Department  
PO Box 7148, Asheville, NC 28802

## 2007 ANNUAL WATER QUALITY REPORT

# Asheville Water Making A Difference



After treatment, the water travels through over 1,625 miles of water lines and is stored in 30 reservoirs located throughout the distribution system. Each day, our water system delivers an average of 21.5 million gallons of water per day to over 123,750 people in Asheville, Buncombe County, and Henderson County.

Regardless of the source of water or treatment facility processing the water, you can be sure that the product delivered to your tap surpasses all Safe Drinking Water Standards set by the EPA. The employees of the Water Resources Department are committed to treating your water with extraordinary care by perfectly blending science and nature. The result for you is the clear, pure water you receive at your tap.

## Lead And Copper

The primary source of lead and copper in tap water is in a customer's home plumbing system. These elements can leach (dissolve) into the water from a building's plumbing through corrosion if the water has been standing in the pipes for several hours. To prevent corrosion from occurring, the City of Asheville has effectively implemented a system-wide corrosion control treatment. At the treatment

plants, sodium hydroxide is added to increase the water's natural pH; sodium bicarbonate is added to increase alkalinity; and zinc orthophosphate is added as a corrosion inhibitor. This treatment minimizes corrosion of the pipes. Buildings at risk for lead or copper in the water are those that have lead service or that have lead solder in copper pipes. Many homes built before 1986



were built with plumbing systems that contained lead solder in the copper pipes. The Water Resources Department was the first water utility in NC to start installing lead free brass fittings. 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. The City of Asheville 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 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 at 800-426-4791 or at [www.epa.gov/safewater/lead](http://www.epa.gov/safewater/lead).

## What EPA Wants You To Know

EPA requires us to inform you that 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 from their health care providers about drinking water. 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).

The EPA also requires us to tell you that 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 may pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water before it is treated include microbial contaminants, inorganic contaminants, pesticides and herbicides, radioactive contaminants, and organic chemical contaminants. The City of Asheville has one of the purest sources of water in the country, thus minimizing any chance of contamination.

All drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. It is important to remember that the presence of contaminants does not necessarily indicate that water poses a health risk. In order to ensure that your tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants. The Food & Drug Administration established limits for contaminants in bottled water which must provide the same level of protection. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800-426-4791).



## Our Water Quality Surpasses All Requirements

Out of 128 possible substances tested only 13 were detected - making our drinking water one of the best sources of water in the country. The following regulated substances were detected (within very safe limits) in our "finished" drinking water as analyzed between January 1 and December 31, 2007. "Finished" water is the water that leaves our treatment plant and is distributed throughout the system.

Substance and Unit of Measurement	Ideal Goal-MCLG	Highest Level Allowed - MCL	Sample Date	EPA Definition of Potential Source(s) of Substance	Results	Individual Plant Results
<b>REGULATED AT THE TREATMENT PLANT</b>						
Fluoride, ppm	4	4	1/16/07	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories.	High 0.95 Range 0.85 - 0.95	Mills River (MR) = 0.85 North Fork (NF) = 0.95
Turbidity, NTU	N/A	TT = 1 NTU Maximum limit for any measurement	12/16/07	The likely source is soil runoff. Monitoring turbidity (cloudiness of water) ensures the effectiveness of our filtration system.	High 0.40	MR = 0.26 NF = 0.40
	N/A	TT = 95% of samples <0.3 NTU	12/16/07		99.7% of samples <0.3 NTU	MR = 100% NF = 99.7%
Total Organic Carbon (Source), ppm	N/A	TT	1/07, 4/07, 7/07, 10/07	Naturally present in the environment.	Average = 1.01 Range ND - 1.43	MR = ND - 1.43 NF = ND - 1.04
Total Organic Carbon (Treated), ppm	N/A	TT	1/07, 4/07, 7/07, 10/07	Naturally present in the environment.	ND	MR = ND NF = ND
<b>REGULATED AT THE CUSTOMER'S TAP</b>						
Copper, ppm	1.3	AL = 1.3	7/07	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.	0.057 at 90th percentile	None of the 51 targeted sampling sites exceeded the Action Level.
Lead, ppb	0	AL = 15	7/07	Corrosion of household plumbing systems; erosion of natural deposits.	< 3 at 90th percentile	None of the 51 targeted sampling sites exceeded the Action Level.
<b>REGULATED IN THE DISTRIBUTION SYSTEM</b>						
Total Coliform Bacteria (presence or absence)	0	5% positive samples	N/A	Naturally occurring in the environment.	0%	No positive samples for 2007
Fecal Coliform or E. Coli (presence or absence)	0	0	N/A	Human or animal fecal waste	0%	No positive samples for 2007
Total Trihalomethanes, ppb	0	80	1/16/07, 4/23/07, 7/26/07, 10/31/07	By-product of drinking water chlorination.	26.8 (RAA) Range 14.0 - 46.0	MR = 23.5 (Average) NF = 30.0 (Average)
HAA5, ppb	NA	60	1/16/07, 4/23/07, 7/26/07, 10/31/07	Total Haloacetic Acid.	14.4 (RAA) Range 6.0 - 32.0	MR = 10.7 (Average) NF = 18.0 (Average)
Chlorine, ppm	MRDLG = 4	MRDL = 4	daily	Water additive used to control microbes.	System Average 1.15 Range 0.32 - 2.12	
<b>UNREGULATED AT THE TREATMENT PLANT</b>						
Sulfate, ppm	500 Proposed	NR	1/16/07	Naturally occurring mineral in soil.	Average 7.5 Range 7 - 8	MR = 8 NF = 7
Chloroform, ppb	NR	NR	1/16/07	Component of Total Trihalomethanes.	Average 1.57 Range ND - 3.14	MR = ND NF = 3.14

This table summarizes results for calendar year 2007.

### 2007 PHYSICAL AND MINERAL CHARACTERISTICS

The following constituents analyzed in your water are indicators of the appearance, taste, and mineral content of the drinking water delivered to your tap.

Constituent	Annual Average
pH, standard units	7.7
Alkalinity, mg/l	22.9
Hardness, mg/l	5.2
Sodium, mg/l	14.3

En Espanol: Este Informe contiene informacion muy importante. Traduscalo o hable con un amigo quien lo entienda bien.

### KEY TO UNIT ABBREVIATIONS

AL	= Action Level; the concentration of a contaminant that triggers treatment or other requirements that a water system must follow. Action Levels are reported at the 90th percentile for homes at greatest risk.	MRDL	= Maximum Residual Disinfectant Level; the highest level of a disinfectant allowed in drinking water.
MCL	= Maximum Contaminant Level; the highest level of a contaminant that is allowed in drinking water.	N/A	= Not Applicable.
MCLG	= Maximum Contaminant Level Goal; the level of a contaminant in drinking water below which there is no known or expected risk to health.	ND	= Not Detected.
MRDLG	= Maximum Residual Disinfectant Level Goal; the level of a drinking water disinfectant below which there is no known or expected risk to health.	NR	= Not Regulated.
		NTU	= Nephelometric Turbidity Unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is noticeable to the average person.
		ppb	= Parts per billion or micrograms per liter.
		ppm	= Parts per million or milligrams per liter.
		RAA	= Running Annual Average.
		TT	= Treatment Technique; a required process intended to reduce the level of a contaminant in drinking water.
		<	= Less than.

## 2007 Achievements

- Received \$40 million in Revenue Bonds to upgrade and replace aging water infrastructure. Projects include replacing small water lines with larger lines, installing fire hydrants in areas without adequate fire protection, installing valves to isolate future maintenance issues, and installing back-up power at the pump stations and Mills River water plant. Projects will be scattered throughout the distribution system: Central Business District, Town Mountain, Haw Creek, West Asheville, Wood Avenue, Royal Pines, Weston Road, area above the Tunnel, White Fawn, Hendersonville Road, Brevard Road, Clayton Road, and Bee Tree Lake Road. Construction is expected to begin in early 2008.
- Started upgrades on two water treatment plants to meet regulatory requirements and ensure the quality of our drinking water. This project will bring the William DeBruhl (Bee Tree) plant back online to produce water.
- Initiate use of Hydrastop equipment to allow our Water Maintenance crews to keep customers in water while repairing water lines, valves, and hydrants.
- Began updating the Water System Master Plan to project area growth and determine what steps are needed to accommodate future water demands.
- Expanded the department to include a Water Engineering Division to improve the water availability, plan review, plan approval, and water inspection processes for customers.
- Replaced or installed 136,122 linear feet of pipe, including repairs, NCDOT projects, construction crew projects, and new projects taken over by the city.