

“2015” Annual Drinking Water Quality Report

“City of Hendersonville Water”

Water System Number: “NC 01 45 010”

We are pleased to present to you our 2015 Annual Drinking Water Quality Report. This report is a snapshot of water quality during 2015. Included are details about your source of water, what it contains and how it compares to standards set by regulatory agencies. Our goal is to always provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and to protect our water resources. We are committed to ensuring the quality of your water and to providing you with this information because informed customers are our best allies. **If you have any questions about this report or concerning your water, please contact Ronald L. Reid at (828) 891-7779. We want you, our valued customers, to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled city council meetings. These meetings are held at City Hall located at 145 5th Avenue East at 5:45 PM on the first Thursday of every month.**

What EPA Wants You to Know

Drinking water, including bottled 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 about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791) or by visiting <http://www.epa.gov/your-drinking-water/safe-drinking-water-hotline>.

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 (Center for Disease Control) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

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 Hendersonville 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 or by visiting <http://www.epa.gov/your-drinking-water/basic-information-about-lead-drinking-water>. Please note the latest results from the City of Hendersonville's lead and copper testing from 2014.

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 microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife; inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and can also come from gas stations, urban storm water runoff, and septic systems; and 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. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

When You Turn on Your Tap, Consider the Source

The water that is used by this system is taken from the Mills River Watershed. We have two intakes located within Pisgah National Forest and they can supply up to 50% of the current usage in the City of Hendersonville and customers located within Henderson County. Water needed to provide the balance of the water demand is pumped from the main stem of the Mills River. The City has installed a 30-inch raw water line from the French Broad River to the City's water treatment plant. Though this line is not actively in service, it is available in situations that require more water than current sources can provide, such as drought conditions.

Source Water Assessment Program (SWAP) Results

The assessment indicated a susceptibility rating of Moderate for the Mills River, Bradley Creek, and the North Fork of Mills River, each is a source for the City of Hendersonville's water system. A susceptibility rating of High or Moderate does not imply poor water quality; rather, it signifies that the system has the potential to become contaminated by ways determined by combining the contaminant rating (number and location of PCS - Potential Contaminant Sources - within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the well or watershed and its delineated assessment area). The assessment findings are summarized in the table below:

The relative susceptibility rating of each source for the City of Hendersonville was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the well or watershed and its delineated assessment area). The assessment findings are summarized in the table below:

Susceptibility of Sources to Potential Contaminant Sources (PCS)

Source Name	Susceptibility Rating	SWAP Report Date
Bradley Creek	Moderate	July 18, 2014
North Fork of Mills	Moderate	July 18, 2014
Main Stem of Mills River	Moderate	July 18, 2014

The complete SWAP Assessment report for The City of Hendersonville] may be viewed on the Web at:

www.ncwater.org/pws/swap. Note that because SWAP results and reports are periodically updated by the PWS Section, the results available on this web site may differ from the results that were available at the time this CCR was prepared. If you are unable to access your SWAP report on the web, you may mail a written request for a printed copy to: Source Water Assessment Program – Report Request, 1634 Mail Service Center, Raleigh, NC 27699-1634 or email requests to swap@ncdenr.gov. Please indicate your system name (City of Hendersonville), number (NC 01 45 010) and provide your name, mailing address and phone number. If you have any questions about the SWAP report please contact the Source Water Assessment staff by phone at (919) 707-9098.

It is important to understand that a susceptibility rating of “higher” does not imply poor water quality, only the system's potential to become contaminated by PCS in the assessment area.

Help Protect Your Source Water

Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source(s) in several ways: dispose of chemicals properly; take used motor oil to a recycling center, volunteer in your community to participate in group efforts to protect your water sources, use lawn and agriculture chemicals responsibly, repair auto fluid leaks, don't dispose of materials on the ground or highways. The City of Hendersonville and City of Asheville are jointly involved with the Mills River Partnership which is working within the community to provide assistance in stream restoration, public outreach, education and stream quality monitoring. Together we will make a difference.

Violations that Your Water System Received for the Report Year

During the 2015 compliance period that ended in December 31, 2015, we are pleased to report that the City of Hendersonville water treatment and distribution divisions received no violations that covered the time period of January 1, 2015 to December 31, 2015.

Water Quality Data Tables of Detected Contaminants

We routinely monitor for over 150 contaminants in your drinking water in accordance with state and federal laws. The tables below list all the drinking water contaminants that we detected in the last round of sampling for each particular contaminant group. The presence of contaminants does not necessarily indicate that water poses a health risk. **Unless otherwise noted, the data presented in this table is from testing done from January 1, 2015 through December 31, 2015.** The EPA and the state allow us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old.

Unregulated contaminants are those for which EPA has not established drinking water standards for yet. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

Important Drinking Water Definitions:

Not-Applicable (N/A) – Information not applicable/not required for that particular water system or for that particular rule.

Non-Detects (ND) - Laboratory analysis indicates that the contaminant is not present at the level of detection set for the particular methodology used.

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 (ug/l) - 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 (ng/l) - One part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000.

Parts per quadrillion (ppq) or Picograms per liter (picograms/l) - One part per quadrillion corresponds to one minute in 2,000,000,000 years or one penny in \$10,000,000,000,000.

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

Million Fibers per liter (MFL) - Million fibers per liter is a measure of the presence of asbestos fibers that are longer than 10 micrometers.

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 (AL) - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

Alternative Compliance Criteria (ACC) - Developed to allow treatment plants the flexibility for establishing compliance with the treatment technique requirements. These criteria recognize the low potential of certain waters to produce disinfection by-products (DBPs), and also accounts for those waters with TOC (total organic carbon) that is very difficult to remove.

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

Maximum Residual Disinfection Level (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.

Maximum Residual Disinfection Level Goal (MRDLG) – The level of a 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 Contaminant Level (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 (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.

Tables of Detected Contaminants

Turbidity*

Contaminant (units)	Treatment Technique (TT) Violation Y/N	Your Water	MCLG	Treatment Technique (TT) Violation if:	Likely Source of Contamination
Turbidity (NTU) - Highest single turbidity measurement	N	.03 - .07 NTU	N/A	Turbidity > 1 NTU	Soil runoff
Turbidity (NTU) - Lowest monthly percentage (%) of samples meeting turbidity limits	N	100%	N/A	Less than 95% of monthly turbidity measurements are ≤ 0.3 NTU	

*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. The turbidity rule requires that 95% or more of the monthly samples must be less than or equal to 0.3 NTU.

Inorganic Contaminants

Contaminant, units	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Arsenic, ppb	July 15, 2015	ND	ND	ND		0	10	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes

Arsenic: While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Nitrate/Nitrite Contaminants

Contaminant, units	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Nitrate (as Nitrogen), ppm	July 15, 2015	N	.080	N/A		10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nitrite (as Nitrogen), ppm	July 15, 2015	N	ND	N/A		1	1	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Nitrate: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

Asbestos Contaminant

Contaminant, units	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Total Asbestos, MFL	August 17, 2011	N	ND	ND-9		7	7	Decay of asbestos cement water mains; erosion of natural deposits

Lead and Copper Contaminants (AL is the Action Level)

Contaminant, units	Sample Date	Your Water	Number of sites found above the AL	MCLG	AL	Likely Source of Contamination
Copper, ppm (90 th percentile)	July 2014	.090	None	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead, ppb (90 th percentile)	July 2014	.001	None	0	AL=15	Corrosion of household plumbing systems; erosion of natural deposits

The City of Hendersonville samples for the contaminants lead (Pb) and copper (Cu) routinely based on the results of analysis done by outside laboratories and guidelines of Public Water Supply. Currently, we are on reduced monitoring because of our testing results in July 2014 in which we were below the established limits for exposure. Sampling is done by the homeowner in containers supplied by the City of Hendersonville and water is then tested by outside laboratories and the results are reported directly to the Public Water Supply Section of the Division of Water Resources and to the City of Hendersonville. Results are then given to the homeowners by the City of Hendersonville.

Radiological Contaminants

Contaminant, units	Sample Date	MCL Violation Y/N	Your Water	Range		MCLG	MCL	Likely Source of Contamination
				Low	High			
Alpha emitters, pCi/L	Mar 8, 2008	N	ND	0		0	15	Erosion of natural deposits
Beta/photon emitters, pCi/L	March 8, 2008	N	ND	0		0	50 *	Decay of natural and man-made deposits
Combined radium, pCi/L						0	5	Erosion of natural deposits
Uranium, pCi/L	March 8, 2008	N	ND	0		0	20.1	Erosion of natural deposits

* Note: The MCL for beta/photon emitters is 4-mrem/year. EPA considers 50 pCi/L to be the level of concern for beta particles.

Total Organic Carbon (TOC)

Contaminant	TT Violation Y/N	Your Water (RAA Removal Ratio)	Range Monthly Removal Ratio Low - High	MCLG	TT	Likely Source of Contamination	Compliance Method (Step 1 or ACC#_)
Total Organic Carbon (removal ratio) (TOC)-TREATED	N	0	ND	N/A	TT	Naturally present in the environment	ACC# 2

Disinfectant Residuals Summary

Contaminant, units	Year Sampled	MRDL Violation Y/N	Your Water (highest RAA)	Range Low High	MRDLG	MRDL	Likely Source of Contamination
Chlorine, ppm	2015	N	2.0	1.8 – 2.0	4	4.0	Water additive used to control microbes

Stage 1 Disinfection Byproduct Compliance - Based upon Running Annual Average (RAA)

Disinfection Byproduct	Year Sampled	MCL Violation Y/N	Your Water (highest RAA)	Range Low High	MCLG	MCL	Likely Source of Contamination
TTHM, ppb	2015	N	18	8 - 21	N/A	80	Byproduct of drinking water disinfection
HAA5, ppb	2015	N	23	18 - 24	N/A	60	Byproduct of drinking water disinfection

Stage 2 Disinfection Byproduct Compliance - Based upon Locational Running Annual Average (LRAA)

Disinfection By-Product (DBP), units	Year Sampled	MCL Violation Y/N	Your Water (highest LRAA)	Range Low High	MCLG	MCL	Likely Source of Contamination
TTHM, ppb	2015	N	18	11- 24	N/A	80	Byproduct of drinking water disinfection
Location: BO3: Pump Shop; WWTP	2015	N	24	19 -24	N/A	80	
HAA5, ppb	2015		22	2 -22	N/A	60	Byproduct of drinking water disinfection
Location: POE; Saluda POE	2015	N	22	10 - 22	N/A	60	Byproduct of drinking water disinfection

For TTHM: *Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.*

For HAA5: *Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.*

The PWS Section requires monitoring for other misc. contaminants, some for which the EPA has set national secondary drinking water standards (SMCLs) because they may cause cosmetic effects or aesthetic effects (such as taste, odor, and/or color) in drinking water. The contaminants with SMCLs normally do not have any health effects and normally do not affect the safety of your water.

Other Miscellaneous Water Characteristics Contaminants

Contaminant, units	Sample Date	Your Water	Range		SMCL
			Low	High	
Iron, ppm	July 15, 2015	ND	ND		0.3 mg/L
Manganese, ppm	July 15, 2015	ND	ND		0.05 mg/L
Nickel, ppm	July 15, 2015	ND	ND		N/A
Sodium, ppm	July 15, 2015	13.9	ND	13.9	N/A
Sulfate, ppm	July 15, 2015	ND	ND		250 mg/L
pH	July 15, 2015	7.6	7.5	7.7	6.5 to 8.5

Cryptosporidium and *Giardia*

Between January 2006 and December 2007, we collected 24-samples from the Mills River (untreated and unfiltered) and detected levels of *Giardia* to be from zero (no detection) to 0.273 in cysts per liter while *Cryptosporidium* was found to be less than 0.095 to 1.0, in these samples.

Our system began the second round of monitoring for *Cryptosporidium* and *Giardia* in October of 2015 and through December 2015 we have had no detects for *Cryptosporidium* or *Giardia*. We will continue to monitor for a period of 24-months to complete this compliance analysis. In accordance with the Long Term 2 (LT2) Enhanced Surface Water Treatment Rule (ESWTR), the City was in compliance with §141.178 (a) and (b).

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. 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 and/or finished 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.

Giardia is a microscopic parasite that causes the diarrheal illness known as giardiasis. *Giardia* (also known as *Giardia intestinalis*, *Giardia lamblia*, or *Giardia duodenalis*) is found on surfaces or in soil, food or water that has been contaminated with feces from infected humans or animals.