

ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2018



Presented By
**City of Hendersonville
Water Treatment Facility**

Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2018. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available should you ever have any questions or concerns about your water.

Where Does My Water Come From?

The City of Hendersonville water customers are very fortunate because we enjoy an abundant water supply from three sources. The City currently withdraws water from the Mills River watershed from two intakes located within the Pisgah National Forest, which can supply up to 50 percent of the City's daily water demand and is fed by gravity into our water treatment facility. The balance of the City's water is withdrawn from the main stem of Mills River. The City recently installed a 30-inch-diameter raw water line from French Broad River to the City's water treatment facility, located at 4139 Haywood Road in Mills River; this is for emergency use only. A raw water pump station for French Broad River is currently in the planning stages.

Important 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791 or <http://water.epa.gov/drink/hotline>.



Source Water Assessment



A Source Water Assessment Plan (SWAP) is now available at our office. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area and a determination of the water supply's susceptibility to contamination by the identified potential sources. According to the SWAP dated July 12, 2017, our water system had a susceptibility rating of Moderate for Bradley Creek and the North Fork and main stem of Mills River. If you would like to review the SWAP, feel free to contact Ricky J. Levi, Water Treatment Facility Manager, at (828) 891-7779 or send email to rlevi@hvlnc.gov. You can also view it at <https://www.ncwater.org/?page=600> by entering ID# NC0145010 or request a copy by either U.S. mail at SWAP 1634 Mail Service Center, Raleigh, NC 27699-1634 or email at swap@ncmail.net.

Table Talk

Get the most out of the Testing Results data table with this simple suggestion. In less than a minute, you will know all there is to know about your water:

For each substance listed, compare the value in the Amount Detected column against the value in the MCL (or AL, SMCL) column. If the Amount Detected value is smaller, your water meets the health and safety standards set for the substance.

Other Table Information Worth Noting

Verify that there were no violations of the state and/or federal standards in the Violation column. If there was a violation, you will see a detailed description of the event in this report.

If there is an ND or a less-than symbol (<), that means that the substance was not detected (i.e., below the detectable limits of the testing equipment).

The Range column displays the lowest and highest sample readings. If there is an NA showing, that means only a single sample was taken to test for the substance (assuming there is a reported value in the Amount Detected column).

If there is sufficient evidence to indicate from where the substance originates, it will be listed under Typical Source.



Lead in Home Plumbing

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 responsible for providing high-quality drinking water, but we 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.

“ We remain vigilant in delivering the best-quality drinking water ”

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. 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 water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

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, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater 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 stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Cryptosporidium

Our system monitored for *Cryptosporidium* and found a level of 0.091 oocysts/liter in only 1 sample out of 24 samples taken from October 2015 to September 2017. *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. 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, immunocompromised people, infants and small children, and the elderly are at greater risk of developing a life-threatening illness. We encourage immunocompromised 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.

Water Characteristics for City of Hendersonville Water System

PARAMETER	OUR WATER
Alkalinity	20 ppm–25 ppm
Chlorine Residual	1.0 ppm–2.0 ppm
Fluoride Residual	0.6 ppm–1.0 ppm
Hardness	4 ppm / 0.25 grains
pH	7.5 S.U.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Ricky J. Levi, Water Treatment Facility Manager, at (828) 891-7779, or email at rlevi@hvlnc.gov.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule, and the water we deliver must meet specific health standards. Here, we only show those substances that were detected in our water (a complete list of all our analytical results is available upon request). Remember that detecting a substance does not mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels.

The state recommends monitoring for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

We participated in the fourth stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR4) program by performing additional tests on our drinking water. UCMR4 sampling benefits the environment and public health by providing the U.S. EPA with data on the occurrence of contaminants suspected to be in drinking water in order to determine if U.S. EPA needs to introduce new regulatory standards to improve drinking water quality. Unregulated contaminant monitoring data are available to the public, so please feel free to contact us if you are interested in obtaining that information. If you would like more information on the U.S. EPA's Unregulated Contaminants Monitoring Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Alpha Emitters (pCi/L)	2017	15	0	0.286	NA	No	Erosion of natural deposits
Beta/Photon Emitters ¹ (pCi/L)	2017	50	0	0.945	NA	No	Decay of natural and man-made deposits
Chlorine (ppm)	2018	[4]	[4]	2.1	1.9–2.1	No	Water additive used to control microbes
Combined Radium (pCi/L)	2017	5	0	1.052	NA	No	Erosion of natural deposits
Haloacetic Acids [HAA]–Stage 1 (ppb)	2018	60	NA	21	16–21	No	By-product of drinking water disinfection
Haloacetic Acids [HAA]–Stage 2 (ppb)	2018	60	NA	14	13–14	No	By-product of drinking water disinfection
Nitrate (ppm)	2018	10	10	0.093	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes]–Stage 1 (ppb)	2018	80	NA	24	18–24	No	By-product of drinking water disinfection
TTHMs [Total Trihalomethanes]–Stage 2 (ppb)	2018	80	NA	17	15–17	No	By-product of drinking water disinfection
Turbidity ² (NTU)	2018	TT = 1 NTU	NA	0.99	0.02–0.99	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2018	TT = 95% of samples meet the limit	NA	98.4	NA	No	Soil runoff
Uranium (ppb)	2017	30	0	0.143	NA	No	Erosion of natural deposits

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH %ILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2017	1.3	1.3	0.085	0/35	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2017	15	0	2	1/35	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
pH (Units)	2018	6.5–8.5	NA	7.6	7.5–7.7	No	Naturally occurring

UNREGULATED SUBSTANCES³

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH
Sodium (ppm)	2018	12.3	NA

UNREGULATED CONTAMINANT MONITORING RULE - PART 4 (UCMR4)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	B01	B02	B03	B04	B05	B06	B07	B08	RANGE LOW-HIGH	AVERAGE	2018 AVERAGE
Bromochloroacetic Acid (ppb)	Sep-18	0.785	0.811	1.12	1.01	1.03	1.01	1.01	0.912	0.785 - 1.12	0.961	0.824
Bromodichloroacetic Acid (ppb)	Sep-18	0.775	0.87	0.898	0.862	0.851	0.966	1.25	0.786	0.775 - 1.25	0.907	0.833
Dichloroacetic Acid (ppb)	Sep-18	15.2	14.5	17.1	14.7	14.2	13.5	16.4	14.8	13.5 - 17.1	15.05	13.97
Trichloroacetic Acid (ppb)	Sep-18	20.1	19.9	16.2	15.9	14.9	15.3	22.9	18.1	14.9 - 22.9	17.91	16.5

UNREGULATED CONTAMINANT MONITORING RULE - PART 4 (UCMR4)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	B01	B02	B03	B04	B05	B06	B07	B08	RANGE LOW-HIGH	AVERAGE
Bromochloroacetic Acid (ppb)	Dec-18	0.645	0.626	0.598	0.873	0.7	0.733	0.704	0.631	0.598 - 0.873	0.688
Bromodichloroacetic Acid (ppb)	Dec-18	0.676	0.709	0.64	0.929	0.759	0.84	0.814	0.713	0.64 - 0.929	0.76
Dichloroacetic Acid (ppb)	Dec-18	12.1	11.8	10.7	15.5	13.5	11.9	13.2	14.4	10.7 - 15.5	12.9
Trichloroacetic Acid (ppb)	Dec-18	13.2	12.7	9.91	20.2	15.6	14.7	16.6	18.1	9.91 - 20.2	15.1

UNREGULATED CONTAMINANT MONITORING RULE - PART 4 (UCMR4)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	E01
Manganese (ppb)	2018	1.43
Quinoline (ppb)	2018	0.0316
Total Organic Carbon (ppb)	2018	1,160

¹The MCL for beta particles is 4 mrem/year. U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.

²Turbidity 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 percent or more of the monthly samples must be less than or equal to 0.3 NTU.

³Unregulated contaminants are those for which U.S. EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist U.S. EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulations are warranted.

Definitions

90th %ile: The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

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

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters under the Stage 2 Disinfectants and Disinfection Byproducts Rule.

MCL (Maximum Contaminant Level): 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.

MCLG (Maximum Contaminant Level Goal): 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.

MFL (million fibers per liter): A measure of the presence of asbestos fibers that are longer than 10 micrometers.

MRDL (Maximum Residual Disinfectant Level): 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.

MRDLG (Maximum Residual Disinfectant Level Goal): 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.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

pCi/L (picocuries per liter): A measure of radioactivity.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

removal ratio: A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

SMCL (Secondary Maximum Contaminant Level): These standards are developed to protect aesthetic qualities of drinking water and are not health based.

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

Water Treatment Process

The treatment process has four main steps: coagulation, sedimentation, filtration, and disinfection. First, process chemicals are introduced to the water and mixed, causing small particles to cling to each other to create larger, heavier particles. In the second process, sedimentation, these particles settle out in our sedimentation basins and are later disposed of through our wastewater treatment facility. Third, the water then flows through our multimedia gravity filters, which remove the remaining particles. Finally, chlorine is added to disinfect the water and ensure it is safe to drink when it reaches your tap.

Community Participation

You are invited to participate in a public meeting and voice your concerns about your drinking water. The City Council meets on the first Thursday of every month at 5:45 pm at City Hall, located at 145 Fifth Avenue E., Hendersonville, North Carolina. Public comment time is provided at each of these meetings. If you wish to speak, please sign up prior to the meeting.



BY THE NUMBERS

The number of Olympic-sized swimming pools it would take to fill up all of Earth's water. **800 TRILLION**

1 CENT The average cost for about 5 gallons of water supplied to a home in the U.S.

The amount of Earth's water that is salty or otherwise undrinkable, or locked away and unavailable in ice caps and glaciers. **99%**

50 GALLONS The average daily number of gallons of total home water use for each person in the U.S.

The amount of Earth's surface that's covered by water. **71%**

330 MILLION The amount of water on Earth in cubic miles.

