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Every Drop Counts

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In the state of North Carolina, there lies water. Water is almost everywhere on the Earth. It covers approximately 71% of it. We all need it to survive. But focus only on the state of North Carolina's water. Is it safe to drink? Does its quality of water need to be improved? Is there a better, safer, more preferred way to get water? How safe is North Carolina's water? Overall North Carolina's water is safe for people to drink.

WAYS OF GETTING WATER

There are many ways to get water. Some people have wells, others buy bottled water, and some people just drink straight from the tap! In any case, people need to get their water. But how safe are those ways?

Well water is a structure dug, drilled, or driven into the ground to access groundwater. People that own private wells, according to environmentblog.web.unc.edu that is “About 3.3 million North Carolina residents—almost a third of its population...” have a higher risk of having unsafe water. This website states that, “Private well water is not regulated under the Safe Drinking Water Act and wells stand at higher risk of contamination than community water supplies—especially near industrial areas with toxic chemicals or large amounts of manure.

Flooding from heavy rain and hurricanes can spread biological and chemical contaminants from their sources, causing surface and well water contamination.” To make matters worse, www.cdc.gov states that, “...as a private well owner, you are responsible for testing your well to ensure the water is safe to drink. EPA is responsible for making sure that the public water supply within the United States is safe. However, EPA does not monitor or treat private well-drinking water.” So not only can natural and industrial causes affect well owners, but the owners can put themselves at risk. Environmentblog.web.unc.edu states, “Well test data for North Carolina private wells show that few well owners regularly test their water.” This is a big problem because the EPA (Environmental Protection Agency) and Safe Drinking Water Act (SDWA) don't test private wells. If the owners themselves don't test the water quality in their wells, they are more likely to drink contaminated water and get sick or diseases. But there are some benefits to owning a well. If you have a well, you don't have to worry about water bills and it can be helpful in bad circumstances (water shortage, bad weather, etc). But the drawbacks are the maintenance, needing power (so the pumps keep water pressure), risk of contamination, and the water running out. Nowater.com states these reasons and goes more into depth about each.

Another way to get water is by purchasing it bottled. Bottled water is mainly safe to drink. Although they can contain small amounts of contaminants, it's not enough to cause harm to the body. “Drinking water (both bottled and tap) can reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. For example, minerals such as magnesium and calcium give water a distinctive flavor, and are essential to the body. At high levels, however, these and other contaminants, such as pesticides or microbes from human wastes, can cause

adverse effects or illness. To make sure that all water is safe to drink, the U.S. Environmental Protection Agency (EPA) and the U.S. Food and Drug Administration (FDA) set drinking water standards. EPA sets standards for tap water provided by public water suppliers; FDA sets standards for bottled water based on EPA standards. Bottled water and tap water are both safe to drink if they meet these standards...”According to the EPA’s Water Health Series document on Bottled Water Basics. Also foodsafetyprocessors.ces.ncsu.edu states, “Bottled water, according to 21 CFR Part 129, must come from an approved source of water. Approved source is defined as a source of water that has been properly inspected and found to be of safe and sanitary quality. All treatment of bottled water must be done in accordance with the regulation of the Federal Food, Drug, and Cosmetic Act. Proper sampling of water from its source must be conducted as often as necessary or at a minimum of once every year for chemical contaminants and once every 4 years for radiological contaminants.” This shows that bottled water is a reliable source to drink. There are regulations, guidelines, and inspections that are taken in place to make sure that the water you buy is safe to consume. But, even if you don’t trust the quality of the water, you can take it upon yourself to purify it. Whether that be by boiling, disinfecting (using a few drops of bleach), distillation, filtration, and more. That is an advantage of bottled water and so is, “The ability to provide safe water in emergency situations, convenience on the go, and a range of tastes and sources to meet consumer preferences are further benefits. However, the major drawbacks of bottled water are its environmental impact and high cost.” This is stated from Svalbardi.com.

Next, we have tap water. Tap water is water that comes straight from a faucet. For the state of North Carolina, we have safe tap water. But, there have been reports of contamination.

For example, The Fayetteville Observer states that, “Recent reporting has illuminated the prevalence of “forever chemicals” like PFAS polluting some of North Carolina’s interconnected drinking water sources. For now, these emergent contaminants remain unregulated.” Another article from The Fayetteville Observer states that, “Water samples in Brunswick and New Hanover county show the presence of several PFAS, also known as ‘forever chemicals.’ The issue was brought back to national attention in January when the Environmental Working Group (EWG) released a report comparing PFAS levels across the country. Those taken locally showed detectable levels of about a dozen of these per- and polyfluoroalkyl substances.” PFAS (Per-and Polyfluoroalkyl Substances) are chemicals used to make fluoropolymer coatings and products that resist heat, oil, stains, grease, and water. Drinking PFAS in water can cause a lot of problems ranging from liver damage, cancer, fertility issues, and more. “More than 35 of those drinking water systems had PFAS levels measured above 4 ppt. The highest levels were in Fayetteville, Greensboro and Burlington, where some samples found levels of PFOS at more than 30 ppt. The state measured PFOA and PFOS in drinking water, two types of PFAS chemicals,” according to Spectrum Local News. This causes concern among people across the state. The North Carolina Department of Environmental Quality has made a plan to prevent or help reduce the levels of PFAS. The plan is called The DEQ Action Strategy. According to www.deq.nc.gov, “The DEQ Action Strategy for PFAS contains three priorities: protecting communities, protecting drinking water and cleaning up existing contamination... DEQ’s priority areas include actions to identify health and exposure risks, develop the science needed to set enforceable limits, and steps to minimize future PFAS pollution.” This gives some relief but it’s best to be safe and not drink straight from the faucet. The pros and cons of tap water are, according to svalbardi.com, “The

main advantage of tap water throughout the world is its low cost. Tap water costs a fraction of a penny per gallon. According to the Harvard Energy and Facilities department, tap water is 3000% less expensive per gallon than bottled water, at \$0.02 per gallon to \$0.64 per gallon of bottled water. The main disadvantage of tap water is the requirement of well-developed infrastructure for ensuring its adequate regulation, maintenance, and contamination prevention...Furthermore, tap water is more exposed to contamination. The sources of public water systems are often surface waters such as rivers, lakes, or reservoirs that are fed through tributaries. These surface waters can be exposed to significant environmental pollution which bottled water generally has less exposure to. Additionally, the pipe networks that are the foundation of tap water systems are often old or otherwise at risk of intrusion of contaminants,” according to Svalbardi.com.

SOLUTIONS

Now that we know some different ways to get water and the pros and cons of each. What are some solutions to those cons? How do we fix it? Starting with well water, one solution is to make an announcement to people on a fixed day to remind people to test their water. For example, near the end of the year, announce to test your water. Make it known to the people or at least remind them, it's their responsibility if they test their water or not. For the individual themselves, when dealing with contamination, they can inspect “the lining of your well for cracks. Of course, finding and fixing cracks in the well still won't completely ensure you'll be protected. Beyond this, you should also invest in a chlorine injection system or UV filter. These water treatment systems consistently neutralize coliform, E. coli and other contaminants that can

make you sick.” This piece of information was from angelwater.com and this website goes more in-depth about other problems dealing with wells. For example, is well water safe (“well water is safe to drink...usually.”), weird smells, stains on clothing, suspicious-looking water, etc. When dealing with bottled water, their main problem is impacting the environment and high costs. A solution to both problems is using a reusable bottle. Although recycling is good for the environment, using a reusable water bottle helps you save money and you’re not hurting the environment as much. According to angelwater.com, it states, “ The first thing you can do is to stop buying drinks in single-use plastic bottles and instead carry a reusable water bottle. This way, instead of buying and throwing away a couple of bottles throughout the day when you want a drink, you just refill your bottle... Even still, there’ll be times when you buy plastic bottles... you shouldn’t just throw that plastic away. Recycle it...” So, buy a reusable bottle if you want to save money and help the environment without even knowing. Finally, solutions for tap water. Tap water is more exposed to contaminants, a solution to that is to buy a water filtration. Buying a water filter has a lot of benefits in itself, but according to www.watercare.co.uk, “Water filtration removes water impurities and dangerous contaminants such as chlorine, disinfection byproducts and heavy metals such as mercury, lead, and arsenic. At the same time, water filters cleverly ensure that important minerals such as magnesium, fluoride, calcium, and zinc are retained. They protect you from toxins and ensure that you consume healthy minerals. Water filters also prevent limescale.”

CONCLUSION

So to sum everything up, there are different ways of getting water that have their benefits and disadvantages. Some outweigh others. Overall North Carolina’s water is safe for people to

drink. There will be a risk with whatever you choose, but that's your choice. Bottled, from a well, or straight from the faucet, everyone needs it to survive, it's just up to you to choose how you want to get it.

Works Cited

Environmentblog.web.unc.edu - “Improving the Water Quality of Private Drinking Water Wells in North Carolina through Multidisciplinary Work”- By Arbor Quist- January 31, 2020

CDC.Gov - “Drinking Water Frequently Asked Questions (FAQs)” -Centers for Disease Control and Prevention (CDC)

Foodsafetyprocessors.ces.ncsu.edu - “Bottled Water and Carbonated Drinks”- Written by Dr. Lynette Johnston

[EPA Water Health Series Bottled Water Basics Document](#) - Environmental Protection Agency

[The Fayetteville Observer](#) - “NC Answers: Is tap water safe to drink in North Carolina?” -Brian Gordon- December 16, 2021

[The Fayetteville Observer](#) - “What’s in the water? A local PFAS guide” -By Allison Ballard - February 17, 2020

[Spectrum Local News](#) - “EPA proposed new limits on ‘forever chemicals.’ Many water systems in N.C. are over the limit”- By Charles Duncan- March 15, 2023

[Nowater.com](#)- “THE ADVANTAGES AND DISADVANTAGES OF HAVING YOUR OWN WELL SYSTEM” - Monticello Pump Services, Inc.

[Svalbardi.com](#) - “Bottled Water vs. Tap Water: Differences, Pros and Cons”- Svalbardi.com

[Angelwater.com](#) - “9 Common Well Water Problems and How to Easily Solve Them”- Angel Water, Inc.

[Angelwater.com](#) - “6 Ways to Reduce Plastic Waste for Earth Day 2023” - Angel Water, Inc.

[Watercare.co.uk](#) - “6 Real Benefits of Filtered Tap Water” - Watercare