

pH, Total Alkalinity & PRIVATE WELLS



What are pH and total alkalinity?

pH is a measurement of the acidity or basicness of water. Water with a pH less than 7 is acidic. Water that has a pH greater than 7 is basic. Water that has a pH of 7 is neutral, neither acidic nor basic.

Total alkalinity is a measurement of the capacity for water to resist changes in pH.

What affects the pH level and total alkalinity in my private well water?

pH levels and total alkalinity depend on the amount of minerals like carbonate, bicarbonate, and hydroxide in groundwater.

How can pH and total alkalinity affect my health?

High and low levels of pH can cause gastrointestinal problems. Low pH (less than 4) can cause skin and eye irritation. High pH (greater than 10) can cause hair damage. High and low pH can cause corrosion which may cause more harmful contaminants to enter groundwater.

Alkalinity cannot impact your health.

What level of pH and total alkalinity should I be concerned about?

The **US Environmental Protection Agency** or **NC Department of Environmental Quality** developed an aesthetic standard for pH of **6.5 to 8.5** being an

acceptable range for pH. This standard was developed to prevent metallic or sour taste, slippery feel, and pipe corrosion. There are no health-based standards for pH.

The US Environmental Protection Agency or NC Department of Environmental Quality have not developed standards for total alkalinity.

How do I test for pH and total alkalinity in my private well?

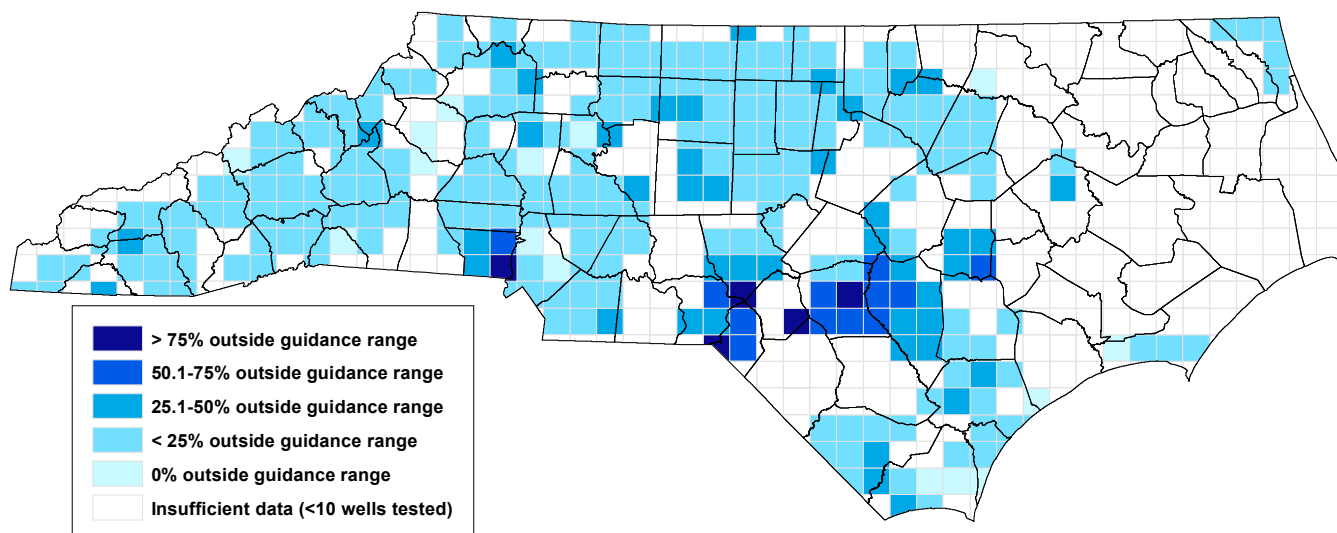
Use a certified lab or buy test kits at your local home improvement store to test for pH and total alkalinity in your well water. Contact the private well program at your county health department to assist you with getting your water tested. Pricing of testing varies from county to county.

What if my water is acidic or alkaline?

If you are concerned about the taste of your well water, you can install a treatment system to neutralize the acidity or alkalinity of your private well.

A neutralizer is a treatment system that can reduce the acidity or alkalinity of your well water.

Percent of Private Wells Tested Outside of State and Federal Guidelines for pH, 2011-2013



What are the pH and total alkalinity levels in NC?

The pH of private well water varies across NC (3.2-11.6), see map for areas with pH outside of guidance range (6.5-8.5).

Total alkalinity of private well water varies across NC ranging from 0-1,020 mg/L.

Where can I find more information about pH, total alkalinity and my well?

Visit the NC Division of Public Health's Private Well and Health Program website: <http://epi.publichealth.nc.gov/oeep/programs/wellwater.html>.

There you can find:

- Contacts for your county private well program
- pH and Total alkalinity in well water maps
- A guide for selecting a treatment system
- Other private well resources

You can also call the Private Well and Health Program at 919-707-5900.

Where did this information come from?

US Environmental Protection Agency: www.epa.gov/sites/production/files/2015-09/documents/2009_03_13_estuaries_monitor_chap11.pdf and <https://safewater.zendesk.com/hc/en-us/articles/211406048-What-is-the-difference-between-pH-and-alkalinity->

World Health Organization: www.who.int/water_sanitation_health/dwq/chemicals/ph_revised_2007_clean_version.pdf

Water Quality Association: www.wqa.org/learn-about-water/perceptible-issues/corrosion/acidity-low-ph-

