

# Household Drinking Water Testing for Public and Private Water Supplies<sup>1</sup>

Yilin Zhuang, Andrea Albertin, and Arthur G. Hornsby<sup>2</sup>

## Introduction

The question of whether to have your water tested is a serious one that concerns the health of you and your family. Your water needs to be safe to drink and acceptable for all household uses. Poor quality water can stain clothes and fixtures. Though it differs from good quality water in taste, color and odor, even water that appears problem-free may not necessarily be safe or acceptable.

It is impractical and unnecessary to test for all possible contaminants, and not everyone needs to test their water. This EDIS publication is for Florida residents who are interested in learning more about how to test household drinking water. It also provides guidelines for Florida residents—especially private well water users—on deciding whether to test their water and on what tests, if needed, would be appropriate for the situation. Your county health department can offer you further assistance and information.

## Public Water Supplies Versus Private Water Supplies

Many homeowners access water simply by turning on the faucets and making a monthly payment to a municipal water system. Others provide their own water. Your water supply is either public—i.e., you and others are connected to the same water system—or private—i.e., you supply your

own water. Public water systems draw water from rivers, reservoirs, springs, or groundwater. Private drinking water most often comes from wells that tap into groundwater. In Florida, groundwater is the primary source of public and private drinking water.

If your water comes from a public or municipal water system, your water is regularly tested for contaminants regulated by federal and state standards, such as pathogens, radioactive elements, and certain toxic chemicals. However, corrosive water or deteriorating pipes in the house may add contaminants to municipal drinking water after it enters your home. To understand how drinking water standards are established, please read [Private Well 101: Drinking Water Standards](#).

If you obtain drinking water from your own well, you alone are responsible for assuring that it is safe. For this reason, routine testing for a few of the most common contaminants is highly recommended. Even if you currently have a safe water supply, regular testing can be valuable because it establishes a record of your well-water quality. This record can be helpful in solving any future problems and in obtaining compensation if someone contaminates your water supply.

1. This document is SL499, one of a series of the Department of Soil, Water, and Ecosystem Sciences, UF/IFAS Extension. Original publication date July 2023. Visit the EDIS website at <https://edis.ifas.ufl.edu> for the currently supported version of this publication.

2. Yilin Zhuang, regional specialized agent II, UF/IFAS Extension Central District; Andrea Albertin, regional specialized agent and Extension agent III, UF/IFAS Northwest District; and Arthur G. Hornsby, professor emeritus (deceased), Department of Soil, Water, and Ecosystem Sciences; UF/IFAS Extension, Gainesville, Florida 32611.

## When Should You Test Your Water?

Whether you have a public or private water supply, you should have your water tested in the following situations (US Environmental Protection Agency, 2022):

- If family members or house guests have recurrent incidents of gastrointestinal illness, test for coliform bacteria.
- If household plumbing contains lead pipes, fittings, or solder joints, test for pH, corrosivity, lead, and copper.
- If you are buying a home and wish to assess the safety and quality of the existing water supply, test for coliform bacteria, nitrate, lead, iron, hardness, pH, sulfate, total dissolved solids (TDS), corrosivity (measured in Langelier Saturation Index), and other parameters depending on proximity to the potential sources of contamination.
- If pipes or plumbing shows signs of corrosion, test for corrosivity, pH, and lead.
- If water stains plumbing fixtures and laundry, test for iron, manganese, and copper.
- If water has an objectionable taste or smell, test for hydrogen sulfide, pH, corrosivity, copper, and lead.
- If water appears cloudy, test for total dissolved solids (TDS) and total suspended solids (TSS).
- If water supply equipment (such as pumps and chlorinators) wears rapidly, test for pH and corrosivity.
- If you wish to monitor the efficiency and performance of home water treatment equipment, test for the specific water problem being treated upon installation, at regular intervals after installation, and if water quality changes.
- If a water softener is needed to treat hard water, test for iron and manganese before purchase and installation; iron and manganese decrease the efficiency of cation exchange softeners.

## What Should You Test for in Private Water Supplies?

The Florida Department of Health recommends testing your private well water annually for coliform bacteria, nitrate, lead, and pH (Florida Department of Health 2022). While these are the most common threats to your drinking water, your water well may also be susceptible to other contaminants. You can contact your local health department to find out what contaminants may be common in your area. Depending on past and present land use or

other sources of contamination in your area, additional water tests may be needed. Test for:

- Coliform bacteria, nitrate, pH, TDS, and commonly used pesticides if your well is in an area of intensive agricultural use. Contact your local health department to find out what pesticides are commonly used in your region.
- Fuel components or volatile organic compounds (VOCs) if your water smells like gasoline or fuel oil and your well is located near an operational or abandoned gas station or buried fuel storage tanks.
- VOCs (such as gasoline components and cleaning solvents), pH, TDS, chloride, sulfate, and metals if your well is near a dump, junkyard, landfill, or factory.
- chloride, TDS, and sodium if your well is near seawater and you notice that the water tastes salty or that signs of corrosion appear on pipes.

Drinking water wells are vulnerable to contamination by industrial chemicals, petroleum, or agricultural chemicals. Well owners are typically not responsible for the contamination and may be unaware of the dangers. In 1984, the state of Florida created the Well Surveillance Program to ensure that potentially contaminated drinking wells are located and tested. The Florida Department of Environmental Protection and the Florida Department of Health are both responsible for the program. Field sampling and surveys are carried out by county health department personnel. Contact your local health department if you suspect your private drinking water wells are contaminated by industrial and agricultural chemicals.

You may want to test more frequently if small children (or elderly adults) live in your house. Are you expecting? Test for nitrate in the early months of a pregnancy, before bringing an infant home, and during the first six months of the baby's life. Consuming too much nitrate can be harmful, especially for infants. High levels of nitrate in drinking water can affect how blood carries oxygen and can cause methemoglobinemia (also known as blue baby syndrome). Bottle-fed babies under six months old are at the highest risk of getting methemoglobinemia.

You should also test your private well water immediately if:

- You replace or repair any part of your well system.
- Your well has been flooded (your wellhead was surrounded by floodwaters, or it was submerged in floodwaters).

- There are known problems with groundwater or drinking water in your area.
- You notice a change in your water, such as a change in taste, odor, or color.

## Where Can You Have Your Water Tested?

Municipal water supply systems regularly test for primary contaminants, monitor levels of sodium and certain unregulated chemical contaminants, and look for corrosion in the water distribution system. They will provide water quality reports online or upon request. You can find your water quality report by searching the EPA Consumer Confidence Reports (CCR) (<https://ordspub.epa.gov/ords/safewater/f?p=136:102>).

Private well users are suggested to test their drinking water in a certified laboratory. The Environmental Laboratory Certification Program was established in 1979 to “ensure laboratory quality and capacity to perform testing of drinking water regulated in the Florida Safe Drinking Water Act” (Florida Department of Health 2022). A list of laboratories accredited by the National Environmental Laboratory Accreditation Program in Florida can be found on the Florida Department of Environmental Protection’s website: <https://floridadep.gov/dear/florida-dep-laboratory/content/nelap-certified-laboratory-search>.

## How Should You Collect Test Samples?

Most testing laboratories or services provide their own sample containers. Use the containers provided and carefully follow the instructions given for collecting, preserving, and handling water samples. Samples for coliform bacteria testing must be collected using sterile containers and under sterile conditions. Some procedures require that water runs from an inside tap for several minutes before filling the sample containers. Others (those, for example, for lead testing) ask you to collect samples after water has been confined in the pipes overnight—i.e., first thing in the morning. Laboratories may sometimes send a trained technician to collect the sample or to analyze the sample directly in your home.

## Publication History

Stewart, Judith C., Ann T. Lemley, Sharon I. Hogan, and Richard A. Weismiller. 1988. “Water Testing and Interpretation.” Cornell University and University of Maryland.

Stewart, Judith C., Ann T. Lemley, Sharon I. Hogan, Richard A. Weismiller, and Arthur G. Hornsby. 2001. “Home Water Testing.” UF Institute of Food and Agricultural Sciences.

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Florida Department of Health. “Private Well Testing.” Last modified February 21, 2021. Accessed January 21, 2022. <http://www.floridahealth.gov/environmental-health/private-well-testing/index.html>

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