Take a look at safety before you pour a glass

by Michael Schroeder

WHEN HE PURCHASED his Catawba, N.C., home in 2013, John Latz quickly determined that the well water wasn't fit for his horses to drink. "It was a horse farm where the previous owners started dumping manure near the well, and so the well had become contaminated with coliform bacteria," he says. Though not likely to cause disease on its own, the bacteria serves as a red flag that other disease-causing organisms, or pathogens, may be present.

Fortunately for Latz, the city had recently annexed the property, linking it to municipal water. He hired A-rated 3rd Rock Plumbing in Hickory, N.C., to pipe city water into his home, in addition to doing other minor plumbing work, for $675. "When we found out the well was contaminated — which fed the drinking water in the house — we thought, 'We can't have that,'" Latz says. Today, he and his wife drink city water, as do their three horses. The couple uses water from the well, which 3rd Rock treated, for irrigation, showers and for toilets.

By historical standards, the U.S. water supply remains relatively safe, both for people drawing from private wells regularly tested by state certified labs and consumers who drink municipal water. Still, concerns over water safety continue to make headlines. Problems range from widespread lead contamination in Washington, D.C., to a toxic spill that contaminated water in Charleston, W.Va. "We've got a lot of chemicals and a lot of contaminants in our drinking water that are known carcinogens and that are also associated with other health problems," says Alex Formuzis, spokesman for the nonprofit Environmental Working Group, a research and advocacy organization.

Responses similarly span coast to coast. In April, the California Department of Public Health became the first in the U.S. to adopt a water standard that limits the known cancer-causing chemical hexavalent chromium,

How does your city rank?

Here are the highest- and lowest-rated large municipal water utilities, as determined by the Environmental Working Group in a 2009 analysis. Want to see how your city performed, or how the EWG determined its findings? Visit ewg.org/tapwater

HIGHEST

1. Arlington, Texas
2. Providence, R.I.
3. Fort Worth, Texas
4. Charleston, S.C.
5. Boston

LOWEST

96. Reno, Nev.
97. Riverside County, Calif.
98. Las Vegas
99. Riverside, Calif.
100. Pensacola, Fla.

Photo by Brandon Smith • Illustration by Leslie McFarland

Photo by Gilbert Boucher | Andrew John Wilson of Angel Water (left) talks with a property manager about the water needs of a homeowner near Chicago.

or chromium-6, though critics say it doesn't go far enough. Chromium-6 found its most famous adversary in consumer advocate Erin Brockovich, and has been detected in most of the largest U.S. cities' water supplies. In New York, officials have pledged to clean up Long Island's water amid research that found high levels of nitrogen in ground and surface water.

Some criticize municipalities and the Environmental Protection Agency for not doing more to make drinking water as safe as possible. "My opinion is the standards aren't strong enough," says Andrew John Wilson, president of A-rated Angel Water, a plumbing company near Chicago that specializes in water treatment.

But while cautioning against being alarmist — with contaminants typically found in trace amounts in water samples — experts say consumers can take steps to further protect the quality of the water pouring from the faucet. That's true whether it's piped in by a utility or taken from an aquifer underground.

Recommendations start with having samples of well water — a drinking source for more than 1 in 7 Americans, according to the EPA — tested every year or two by a state certified environmental testing lab. "It's Mother Nature. She changes every day," Wilson says. "That's why the EPA, the Department of Health [local and state], they all recommend regular testing." Consider also testing for specific contaminants if you have concerns about drinking water supplied by a utility. Wilson, along with the EPA, advise that you go to an independent lab rather than relying on the same company to test and possibly fix your water issues — a conflict of interest that could slant testing results. A test for well water runs about $300, Wilson says.

If you drink municipal water, you should receive an annual water quality report by July 1 of each year. As required by the EPA, this details where your water comes from and what's in it, including any violations that indicate the presence of contaminants at levels higher than EPA maximums. Formuzis suggests reviewing the information carefully.

Armed with that knowledge, you can take the next step. "Filtering your water is always a good idea, no matter where you live in this country," Formuzis says. "Contaminants are in tap water, even after they've gone through filtration and treatment through the local utility, so there's an extra line of defense." Wilson, whose company sells water filtration systems, thinks that reverse osmosis — widely considered the most effective method for purifying water in homes — will become more common. "They're going to be like microwaves — in every home," Wilson says.

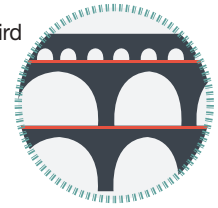
He bases that on an expectation that the increase in waste resulting from population growth in the U.S. will contribute to increased water contamination, and that advances in technology will allow experts to draw stronger conclusions on how such contaminants affect health, such as causing cancer. "The pesticides and herbicides we once thought

A FLUID TIMELINE

From the dawn of civilization, mankind has thirsted. But only in recent centuries have societies sought safe ways to quench a parched palate, with the discovery that untreated water could prove hazardous to one's health. Here's an abbreviated version of water quality's progress to date:

144

Rome builds its third aqueduct. Unlike others the city constructed to that point to carry water for bathing and flushing, this aqueduct was erected primarily to transport drinking water.



1804

Paisley, Scotland, becomes the world's first municipality to provide water filtration for its entire city, installing sand filters to clean water and make it potable.

were safe are no longer [considered] safe," Wilson says. Costs to filter range drastically. Filters that go in the refrigerator can start at around $20, while reverse osmosis systems for the home can retail for $1,500 or more.

For her part, Mary Miller, founder of highly rated Fredericktowne Labs in Myersville, Md., seems less convinced of the need for filtration systems in homes. The state certified environmental testing laboratory tests samples of water for homeowners. Most are on well, though some are municipal customers, too, looking to test for contaminants. Costs range from $24 to test for lead, $100 to test for trihalomethanes and $220 for haloacetic acids — disinfection byproducts that contain chlorine.

The EPA deems THMs and HAAs safe at low levels. But people who consume THMs at levels above the EPA maximum over many years could experience liver, kidney or central nervous system problems and increased risk of cancer. Similarly, those who consume HAAs over many years above set levels may face an increased cancer risk, the EPA says.

But Miller defends city water: "Municipal water is just fine. It's very, very tightly regulated. It's a perfectly fine source of drinking water."

The EPA agrees in a statement to Angie's List: "Today, more than 290 million Americans depend on 50,000 public water systems across the country for safe, reliable water. EPA has set standards for more than 90 contaminants and 93 percent of the population supplied by public water systems receives drinking water that met all health-based standards all of the time." The agency does note that people with compromised immune systems may want to take extra precautions because they can be more vulnerable to microbial contaminants in drinking water, such as a parasite that lives in the intestines called cryptosporidium.

"For people with weakened immune systems, it can cause severe illness and even death," the EPA says on its website. The agency says those wishing to take extra precautions can boil their water for a minute — the most effective means to kill the parasite — or install water filters.

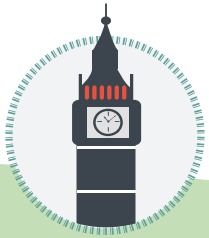
Photo by Bill Green | Analysts at Fredericktowne Labs, like Karen Becraft, test water and wastewater for customers ranging from homeowners to municipalities.

Miller and others highlight another potential source of contamination: metal pipes. In older homes, outdated plumbing can deposit lead into drinking water. "Lead is very bad, particularly for young children," Miller says. Experts recommend homeowners test if concerned about lead contamination and replace lead pipes. "There's no safe level of lead in our opinion and that of many others. Lead is highly toxic to the nervous system," says Formuzis of the EWG.

You may also get a whiff of other dangers, like high levels of manganese. Though naturally occurring, research shows heavy doses of this mineral can undermine intellectual functioning in children. Miller says it imparts a foul odor and taste.

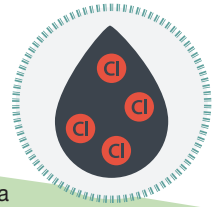
She insists that homeowners should not ignore their gut when they have any concerns. "Even if it doesn't make you sick, that doesn't mean it can't make someone else sick," Miller says.

1854



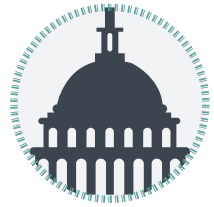
Physician John Snow's investigation into a cholera outbreak in London links its spread to drinking water. This served as proof that it could carry disease. Such discoveries drove improvements in drinking and wastewater systems.

1890



Use of chlorine to treat water becomes commonplace in municipal systems in England. This practice comes to America in 1908 via Chicago and Jersey City, N.J. Widely used today, it's now regulated by the EPA.

1974



Congress passes the Safe Drinking Water Act in an effort to protect public health by regulating the nation's drinking water supply.

2009

The EPA makes its most recent update to the list of contaminants it regulates in drinking water. The number of contaminants the agency now monitors exceeds 90.

Sources: "Drinking Water: A History," by James Salzman; EPA; Humboldt State University

Illustration by Matt Mukerjee