

After the Hurricanes: Managing and Disinfecting a Flooded Well

*By Bob G. Vincent
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In early September, Hurricane Florence became the first major hurricane of the Atlantic hurricane season and wettest tropical cyclone recorded in the Carolinas. Just over a month later, Hurricane Michael hit the Florida Panhandle, dumping significant rainfall before doing the same in southern Georgia and in many of the Carolina counties already reeling from Florence. Following in the footsteps of 2017's hurricane season, many U.S. private water wells¹ along and near the southeast and gulf coasts have been flooded in 2018. This article provides some tips and links to resources to help private well owners respond to flooding following a hurricane or major storm, including how to disinfect a well.



Photo credit: State of North Carolina

How Many Wells Flooded?

According to the National Ground Water Association (NGWA),² "Considering both hurricanes, potentially 660,000 or more private wells across North Carolina and South Carolina and Florida may have been affected by the effects of flooding, high water table connection to septic systems, flood debris damage, or related incidents..." To arrive at these numbers, NGWA overlaid state maps of disaster designations with National Weather Service rainfall intensity maps (>5 inches during Florence and Michael) to identify the number of counties and wells potentially affected. Of course, adjacent counties may also have experienced significant well flooding from lesser rainfall amounts.

What to Do after the Hurricanes

If you live in an area that was recently flooded, whatever the cause, your private well may be at risk of contamination or damage from pollutants and debris carried by flood water. Well owners should always suspect water contamination any time the well casing becomes flooded, or if there are noticeable taste, color, or sediment changes in the well water.

Here are some [first steps](#), including things you should do (and not do), if your well has been impacted by floodwaters:

- **Do not drink or cook with your well water!** You could get sick from microbial or chemical contaminants washed into the well by the flood.
- **Do not turn on the well pump!** There is a danger of electrical shock and damage to your well.

¹ According to the [U.S. Geological Survey](#), an estimated 42.5 million people, or 13 percent of the U.S. population, provide their own water for domestic use, the vast majority of which comes from private wells. Private well owners are responsible for monitoring and maintaining the safety of their drinking water.

² <https://www.ngwa.org/detail/news/2018/10/16/potentially-360-000-private-water-wells-affected-by-recent-hurricanes-in-the-atlantic>.

- Contact a certified well contractor to address the impacts of the flood on your well-pump system, including debris clean-up and mechanical and electrical component inspections and repairs.

If you suspect your drinking water is contaminated, find an alternative source you know to be safe for drinking and cooking, such as from a community water supply, bottled water, or household water boiled for a full minute. Flooding can allow bacteria and other microorganism and chemicals to enter the top of a well or seep down along the well's casing. Even if flood water did not rise above the top of a well casing, a neighbor's well may have been flooded, allowing contamination of nearby wells.

Before resuming use of your well, collect a water sample and have it tested for [indicator bacteria](#) by a state certified laboratory, which can be found by consulting your local or state health department, or by using one of the resources listed below. If tests indicate your well is contaminated with bacteria, you should have the well and the entire plumbing system disinfected using a *shock chlorination* process. A licensed well contractor will have the equipment, materials, and expertise to properly disinfect a well.

Alternatively, well owners can disinfect their own wells if the directions—particularly determining and safely adding an [appropriate amount](#) of unscented bleach³—are followed carefully (see below). And always have your water tested a second time after it is treated with chlorine-based disinfectants or any other disinfection or treatment process. Note that disinfection or boiling will not provide protection from chemicals (e.g., fuels) that may have contaminated your private well.

In preparing for the future, ask your well contractor if your well casing should be raised to a height of at least two feet above the regional flood elevation for your location, which usually corresponds to the height of water during a 100-year flood event.

Additional Resources

Fortunately, there are a wide variety of organizations and information resources that private well owners may access to help respond to and prepare for flooding from hurricanes or other major storms, including excellent online materials by the U.S. Centers for Disease Control and Prevention (CDC) on [disinfecting wells after a disaster](#) and by the U.S. Environmental Protection Agency (EPA) on what to do with [your private well after a flood](#). Additional resources are provided by state and local governments, non-governmental associations, and trade associations like NGWA and its resource center for consumers, [WellOwner.org](#). Another valuable resource is the [wellcare® Well Owners Network](#), which offers the following information:

- Videos on [Disinfecting a Well in Case of Contamination](#) and [What Private Well Owners Need to Know About Your Water Supply in Case of a Natural Disaster](#);
- Information sheets on [Emergencies, Disasters, and Wells](#), [Disinfecting Your Well](#), and [Managing a Flooded Well](#); and an
- [Interactive map](#) with emergency agency contact information by state.

Unfortunately, for millions of Americans who rely on private wells for drinking water, hurricane- and storm-related flooding and damage is a very real hazard that must be properly addressed to keep you and your loved ones hydrated and healthy during the recovery.

Bob G. Vincent is an Environmental Administrator in the Florida Department of Health. He manages Department of Health programs for Healthy Marine Beaches, Safe Drinking Water, Water Well Surveillance and Public Pools and Bathing Places.

www.waterandhealth.org

³ Bleach used to disinfect a well should contain a minimum of 5.25% sodium hypochlorite; currently, most household bleach is a 6% solution of sodium hypochlorite.