PRIVATE WELL INFORMATION SHEET
HURRICANES, MAJOR STORMS, & FLOODING

Hurricanes, major storms, tornados and flooding can all occur in Virginia. Any time that a well is inundated, well users should take certain precautions to make sure their water is safe and their well is in good operating condition. An obvious concern is that flood water loaded with bacteria, chemicals or other pollutants may have gotten into the well. A less obvious concern is electrical shock if a non-submersible pump or any part of the well electrical system is flooded. In coastal areas subject to storm surge, inundation with salt water may occur. Following a major storm or flood event, well users are advised to not drink the water from the well or use it for washing until the integrity of the supply is established.

Use the Plan-Check-Act approach

PLAN

Plan ahead by:

- Maintaining a supply of bottled drinking water sufficient to last your family for three days. One gallon per person per day is suggested for drinking and hygiene purposes. (see www.ready.gov for additional information for preparation of a basic emergency kit).
- Maintain a list of contact information (VDH, Water Well and Septic professionals, treatment system providers).

CHECK

Following a storm or flood event, well users should, at a minimum:

- Visually inspect the well for obvious signs of damage, maintaining a safe distance to avoid electrical shock from the well if the wellhead is flooded, buried, or clearly broken by fallen trees or branches.
- Observe the water for discoloration, odor, or other sign of potential adverse effect.

ACT

- Well users who observe sediment in the water supply should use an alternate source of water until the water supply is clear.
- If in doubt regarding water quality, the water may be boiled before use or residents may consider using bottled water.
- If your water is cloudy or muddy, the well and waterlines should be flushed until the water has cleared. Check that grit is not preventing toilet valves from fully closing, which can overload your onsite sewage treatment system.
- Users may also use “shock chlorination,” which is a process of disinfecting a private water supply and plumbing system by circulating a concentrated chlorine solution throughout the system.
- Contact a qualified well contractor or pump installer for assistance in repair if necessary.
- ***If the discoloration persists, or if well users have concerns about contamination or structural integrity of the well they should contact a licensed professional to inspect the structure, test the water and treat if necessary.***

Note: The Local Health Department (LDH) can assist well users with the chlorination and/or boiling procedures, which can also be found at the following links:

- http://www.wellwater.bse.vt.edu/files/SHOCK442-663_PDF.pdf
- http://www.vdh.virginia.gov/ODW/BoilingWaterFAQ.htm

What if the Worst Happens?

In the event that storm damage is sufficient to render a well inoperable and beyond repair, the well must be taken out of service (abandoned) and a new well installed. Your LDH can guide you through the process.

A Note Regarding Onsite Sewage Systems

Following any significant flooding event, the users of onsite sewage systems should check the structural integrity of system components, especially if you notice wet spots, sewage odors, or disruptive sounds made by mechanical components of your system.

Depending on your location and the type and construction of your onsite sewage treatment system, a flooding event may damage one or more of your system's tanks, important mechanical components, connecting pipes and/or electrical cables.

For all systems, look for changes in how your system functions, looks, sounds, or smells. Be on the alert for a change in how well household toilets flush and drains drain, the sudden appearance of wet or unusually green spots in your yard, and/or the emanation of different or more intense odors from your system.

For systems with mechanical components (blowers, pumps, etc.), look for activated alarm lights and buzzers and/or a change in how the mechanical components of your system sound.

One problem often reported following a flood event is due to grit that enters a water well. If that grit makes its way through your household plumbing to your toilet, it can jam in the float valve – keeping that valve from closing when the tank is full. The extra flow of water can overload your onsite sewage treatment system, contributing to a failure long after the flood occurred.

Additional Information

For more information about specific concerns regarding private wells or onsite sewage systems, contact your local health department, your Water System Installer or your Onsite Sewage System Operator. Additional resources on private well water, onsite sewage systems are available at the following locations:

- Centers for Disease Control and Prevention
- National Ground Water Association
- Virginia Certified Laboratories
- Virginia Master Well User Network

Interesting…

Following Hurricane Katrina, the U.S. Geological Survey (USGS) studied wells on the northern shoreline of Lake Pontchartrain to determine the effect of storm surge water on the shallow groundwater resources.

Approximately 1,400 wells, primarily small diameter domestic use wells, were located in the storm surge inundation area. The storm surge overtopped many of these wells, destroying aboveground well structures and breaking casings, which may have allowed surge water to enter some of the wells.

Surge water entering damaged wells did not contaminate the entire aquifer; however, contamination did occur locally at well sites. Groundwater quality in shallow aquifers in the inundation area was locally affected by surge water and possibly rain water entering damaged wells. Because the storm surge from Katrina lasted only a few hours, surge water entering the aquifer was anticipated to have only a short-term effect. Many of the sampled wells were in use by users and probably had much of the surge water withdrawn prior to sample collection. The two wells that yielded water with the highest chloride concentrations had not been used since the storm and prior to sampling.

Because damage from Katrina was catastrophic, damaged wells in some areas remained open to surficial contaminants for an extended period. It is possible that damaged wells that were open at land surface may have allowed additional contamination from subsequent rainfall or flooding events.

Source: "Effects of Hurricane Katrina's Storm Surge on the Quality of Shallow Aquifers near the Northern Shoreline of Lake Pontchartrain, Southeastern Louisiana," by Dan J. Tomaszewski and John K. Lovelace