

What Do I Need to Know About Preparing a Water Well for Flooding/Storm Events?

Since Hurricane Harvey dumped more than five feet of water in 2017, Texans are more aware of the damage such an event can inflict. Even in areas where there may not have been flooding prior to this event, the changing landscape as the result of a growing population has resulted in the expansion of flood-prone areas. This FAQ features suggestions for private well owners before and after a storm/flood, with additional resources provided to assist in developing your own specific plan of how best to protect your well.

Wells with a history of being flooded should be especially prepared for such events to limit or prevent damage to the well's electrical system and to prevent pollutants from entering the well. Preparation efforts could include choosing where to place the well, designing the wellhead, and how best to seal the well casing and electrical system. A little more effort and money now may save problems and expenses in the future and could help ensure your well will be operating again as soon as possible. Guidance is available on several websites, including FEMA¹, EPA², USDA, some states³⁻⁶, and numerous private water and well service sites⁸⁻⁹ that provides good recommendations to consider if you are moving to and/or building in a flood-prone area or already have a water well in one of these areas.

What Should I Consider if I'm Drilling a New Well?

If you are planning on having a water well drilled and installed, locate it on a higher elevated part of the property, if possible. Also, ensure it is not installed near potential sources of contamination, such as septic systems, burn pits, or chemical storage areas. These are prudent considerations for private well owners. The next step is the design of the well system.

How Do I Know I Have a Good Well System Design?

Considerations for well design include the wellhead and pad or well house, how high to make the well casing above surface, a sanitary cover, backflow valve, surface and casing seal, and sealing the electrical system, which should also protect against insect or animal access and damage. General requirements are found at <https://www.tdlr.texas.gov/wwd/wwdspecs.htm>

Details include the following:

- The sanitary cover or cap should seal the casing to prevent floodwaters, children, and animals from entering the well;
- Slope the area around the well to drain surface runoff away from the well;
- The height of casing should be at least 2' above any previous known flood level;
- The wellhead or pad should support 400 lbs., include at least 10' of annular concrete grout and provide a watertight seal;
- The piping to a treatment system or spigot should include a backflow valve to prevent contaminated water from the surface flowing back down the well; and
- The electrical controls need to be protected to prevent shorting out or being otherwise damaged during a flood event (licensed electricians can be located at <https://www.tdlr.texas.gov/LicenseSearch/>).

What Should I Consider if I have a Preexisting Well?

Existing wells can be protected; however, wells need to be in good condition (usually < 50 years old) and of sufficient depth to prevent or limit surface contaminants from easily migrating into the water table (usually >50' depending on the aquifer and if it is connected to the surface).

More details on what is considered a "non-deteriorated well" are available from the Texas Department of Licensing and Regulation (TDLR) at

<https://www.tdlr.texas.gov/wwd/abandonedwells.htm> and

<https://www.tdlr.texas.gov/wwd/wwdspecs.htm> . If your well does not have casing and /or a

pump in good condition, it should be properly decommissioned (plugged). Instructions for plugging a well can be found in the Landowners Guide to Plugging Abandoned Water Wells (publication RG-347 at https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg-347.pdf).

If you need assistance in determining the condition of your well, you can contact:

- Your local groundwater conservation district (GCD) (https://www.twdb.texas.gov/mapping/doc/maps/GCDs_8x11.pdf?d=2964.5000000018626lice);
- A licensed water well driller in your area (<https://www.tdlr.texas.gov/LicenseSearch/>); or
- The Water Well Drillers Program with the TDLR (<https://www.tdlr.texas.gov/wwd/wwd.htm>).

What Should I Do Following a Flood/Storm Event?

There are many details to consider in preparing for flood events and for testing your well after such an event. You may be disinfecting your well, having a water sample analyzed, and contacting a licensed electrician/well installer to test the electrical controls and pump for soundness. Well owners may also choose to have a backup generator should the power system be delayed or seriously damaged. Further details are available from your local GCD, a licensed water well driller, electrician, or the Water Well Drillers Program of the TDLR. More detail on steps to take after a flood/storm can be found in the following EPA document, What to Do After the Flood: <https://www.epa.gov/sites/production/files/2015-05/documents/epa816f05021.pdf>.

Should you want to know how to protect your well from winter freezes, the Texas Well Owners Network at the Texas Water Resources Institute website has two FAQs on winterizing your southern well at the following: <https://wellowner.org/2021/02/winterizing-your-well-southern-style/> and

<https://wellowner.org/2021/02/keep-your-well-safe-and-operating-through-winter-weather/>.

Where Can I Find Additional Resources?

Resources available Online, while not an exhaustive list, include the following:

¹FEMA-Protect Wells From Contamination by Flooding;

<https://mitigation.eeri.org/files/resources-for-success/00065.pdf>

²USEPA-What to Do After the Flood; <https://www.epa.gov/sites/production/files/2015-05/documents/epa816f05021.pdf>

³Texas Commission on Environmental Quality;

https://www.tceq.texas.gov/drinkingwater/homeland_security/disasterprep/disasterprep.html

⁴Texas Water Development Board; <https://www.twdb.texas.gov/flood/prep/>

⁵Texas A&M AgriLife Extension Service Factsheet ESC-058; How to Ready your Well for the Next Flood: Preparation, Evacuation and Return Home; <https://twon.tamu.edu/media/727702/water-well-evac-preparedness.pdf>

⁶California Department of Water Resources, Flood Preparedness; <https://water.ca.gov/What-We-Do/Flood-Preparedness>

⁷Clean Water Store, What To Do When Your Well is Flooded;

<https://www.cleanwaterstore.com/technical/water-treatment-guides/Floods-And-Your-Well-Water.pdf>

⁸Partridge Well, Water Well Hurricane Prep-Don't Forget About Your Well;

<https://partridgewell.com/water-well-hurricane-prep-dont-forget-well/>

Additional information can be obtained from the Texas Commission on Environmental Quality at https://www.tceq.texas.gov/drinkingwater/homeland_security/disasterprep/disasterprep.html , the Texas Department of Licensing and Regulation at <https://www.tdlr.texas.gov/> , the Texas Water Development Board at <https://www.twdb.texas.gov/flood/index.asp> , and the Texas A&M AgriLife Extension Service at <https://agrillifeextension.tamu.edu/browse/featured-solutions/water/> .

For additional Frequently Asked Questions (FAQs) related to groundwater quantity, groundwater quality, septic systems, water wells, administrative entities, and publications, visit the Texas Groundwater Protection Committee's FAQ webpage at <https://tgpc.texas.gov/frequently-asked-questions-faqs/>.