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# ENVIRONMENTAL Fact Sheet

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## Water Supply Options for Homeowners on Residential Wells During Drought

### Symptoms of Well Failure

Typically, dug wells, shallow bedrock wells, wells located near topographic high points and wells constructed in areas where bedrock is close to the ground surface are more susceptible to failure when drought conditions are present. The typical homeowner does not have a means of determining a well's water level, although symptoms of well failure may be obvious. Symptoms may include:

- Cloudy or heavily silted water.
- No water.
- Sudden drops in water pressure or pressure surges.
- Air bubbles coming out of non-aerated faucets.

The cause of well failure may be a shortage of water or other problem associated with the well casing, valves, waterlines, pumps or pressure tanks. It is important to work with a licensed pump installer and/or well driller to diagnose the problem and determine the appropriate corrective action to take. Keep notes of the following to provide to the contractor:

- Date(s) and time(s) the symptoms occur and how often (ex. every day).
- Types of symptoms observed.
- Where symptoms are observed (ex. kitchen faucet).
- Water quality description such as color, odor, staining and sediment in the water.

If you are experiencing any of the above issues in your water system, turn the pump off to prevent your pump from continuously pumping air and burning itself out. A water pump can be turned off from a home's electrical panel. It is advisable to take action early, because the demand for well drillers and pump installers during drought increases, as do wait times.

### Private Well Records

Locate records regarding well construction and pump work, as well as the exact location of the well. Maintain a well location marker that can be identified during all seasons. This information should be provided to any licensed well driller or pump installer you work with.

Since 1984, well drillers have been required to fill out and submit a well completion report for each constructed well. To access this information, search on [OneStop](#) by checking "Water Well" under "Specific

Areas of Interest” and entering the address information or contact the [Water Well Program](#). Records of wells constructed prior to 1984 may be available from the original well driller or pump contractor.

### **The Most Common Types of Wells**

Dug wells are commonly 3- or 4-foot diameter wells constructed by excavation and are usually not much deeper than 15 feet below land surface. Older dug wells are lined with fieldstone, and more recent construction utilizes inter-locking concrete tile. These wells are generally easy to identify in your yard because they are relatively large stone or concrete objects protruding from the ground and many have well houses built over them for protection or for ornamental purposes.

Drilled bedrock wells are almost always 6-inch diameter wells drilled into solid bedrock and cased with steel pipe through the unconsolidated earth deposits into the upper surface of the bedrock. The remainder of the well is a 6-inch open hole drilled in bedrock. These wells range in depth from less than 100 feet to more than 1,000 feet. They should be easily identified as that odd looking six-inch steel pipe sticking out of the ground.

### **Well Improvement Options**

A licensed well driller or licensed pump installer will be able to assist you with determining if your water supply is diminishing, assessing if there are other issues causing well failure, and remedying the problem. To search for a licensed water well contractor, use the [Water Well Contractors and Pump Installers Query](#).

In New Hampshire, most residents relying on their own wells have a dug well or a bedrock well. If your well is showing symptoms of a water supply shortage, below are options that may help to mitigate the issue and factors you should discuss with a licensed well driller or licensed pump installer.

- Install a sediment filter to protect plumbing and appliances or install other treatments to address odors and aesthetics. Typically, the water quality related issues will resolve on their own once the drought is over, but this may take months.
- Address water quality issues. Be aware that a change in water quality due to lowering water levels may or may not result in water supply issues.
- Lower the pump or pump intake into the bedrock or dug well to access more usable storage. Because lowering the pump means the pump will have to work harder, a larger pump may be necessary. There are also potential water quality issues that could occur as a result of lowering the pump.
- Increase the atmospheric tank size to provide additional water storage. For a well with a slow recovery rate, the additional storage will reduce demands on the well during high water use periods and store water extracted from the well during lower use periods.
- Deepen the existing well to increase the yield of the well and/or to lower the pump to increase usable storage in the borehole. The yield of a bedrock well will only increase if new water-bearing fractures are encountered. A dug well can only be deepened if it is not underlain by bedrock. Driving a steel metal rod into the bottom of a dug well is a common test to determine if bedrock is present.
- Construct a new well to be used in tandem with or as a replacement for an existing water source. To determine if there is good chance of a new well providing enough water to meet your needs, it is advisable to check the well database on [OneStop](#) to identify the depths and yields of other wells in the area.

- Hydro-fracture the existing bedrock well to increase yield by flushing out and opening fractures in surrounding rock to increase water flow. Factors to discuss with a licensed well contractor:
  - If the well was previously developed by hydro-fracturing and the yield has again diminished, a second attempt to hydro-fracture may be initially successful, but it will likely not be sustained over time.
  - It is recommended that shallow bedrock wells be deepened to 400 or 500 feet to obtain additional supply prior to considering hydro-fracturing. This provides adequate surface area in the well borehole to develop deeper and more sustainable water-bearing fractures, providing a good chance of increasing yield.
  - A completely dry hole is not a great candidate for hydro-fracturing because the well must have some water-bearing fractures to start with.

### **Alternative Water Supplies**

Purchase water holding tanks and have the tanks filled by a bulk water hauler. See the list of [Bulk Water Haulers and Providers](#) that have signed off on being able to comply with the Bulk Water Hauling rules to ensure the delivery of safe drinking water.

While not recommended, in an emergency situation, retaining a bulk water hauler to fill a well is an option. The water can quickly drain out from the well, but the supply may be enough to last a few days until another solution is identified. This option also poses a potential contamination risk during well filling. Be aware that it is not legal to put any water in a well except water from an approved NHDES source transported in a water tank truck that is solely used for potable water. Further details may be found in the fact sheet, [WD-DWGB-18-2 Emergency Bulk Water for Public Water Systems](#).

Call your local municipality to find out if an emergency source of water has been designated for well owners affected by drought. Municipalities are also asked to inform NHDES of emergency sources for posting on the [Drought Management Program webpage](#).

### **Safety and Sanitation**

All wells should be disinfected after completing any of the above work. For more information, see the fact sheet, [WD-DWGB-4-11 Disinfecting a Private Well](#).

Do not share water between homes by interconnecting two homes' plumbing systems. This is a contamination risk. Backflows may spread bacteria from one home to the other home.

If using water from a neighbor's home, do not use water from a hose for drinking or cooking, because the hose may have bacteria and other contaminants in it. Hose water may be used for bathing, washing clothes, cleaning and flushing toilets.

You do not need running water to flush a toilet. Use a hose or a bucket of water to dump approximately one gallon of water into the toilet bowl all at once, and gravity will flush the toilet.

**Water Use and Conservation**

Reducing water use and timing that usage strategically may help sustain supplies until drought conditions are alleviated and groundwater levels are replenished. See [Drought Guidance for Homeowners on Residential Wells](#) for tips on reducing water usage.

**Financing**

There is limited financial assistance available to assist with residential well water system problems. Most households will need to rely on savings or other financing options for addressing failed water supply wells. For very-low income households, there is a [Residential Well Financial Assistance Program](#) offered by the U.S. Department of Agriculture Rural Development.

**For More Information**

For additional information, please contact the NHDES Drinking Water and Groundwater Bureau at (603) 271-2513 or [dwgbinfo@des.nh.gov](mailto:dwgbinfo@des.nh.gov) or visit [www.des.nh.gov](http://www.des.nh.gov).

Note: This fact sheet is accurate as of March 2020. Statutory or regulatory changes or the availability of additional information after this date may render this information inaccurate or incomplete.