



www.nhwaterwell.com

Information: New Hampshire Water Well Association

Information in this document is provided in good faith to inform the public about groundwater and water wells. Well owners should ensure that their well contractor has obtained permits (if required) and has referred to local codes, rules, regulations and laws for site selection, construction, maintenance and operation of water wells and water system equipment.

WATER LEVELS IN WELLS

Most home wells use small amounts of water in comparison with the total amount of water in storage in the surrounding aquifer. However, knowing well water levels in your well can prevent overuse. The NH Department of Environmental Services and the US Geological Survey routinely undertake groundwater level measurements and can tell you about water level trends in your area. You can also obtain information from the US Geological Survey about real-time ground water levels by visiting the USGS web-site.

How far down is the water in your well? The only information you may have is the level of the water when the well was first drilled. Only professionals with the right equipment should open up a water well. Once the well cap is off, and the pump equipment removed, a flashlight, or sunlight reflected by a mirror may allow you to visually see the water level. A method for measuring the water level is to insert an electronic probe on a roll of electric wire down the well. When the probe meets the water an electric circuit is completed and a buzzer, light or ohmmeter needle responds. The length of cable from the top of the well casing to the probe (when the circuit was completed) will be the depth to water in the well. In most wells, the pump, pipe, pipe centralizers and electric cable can make direct measurement impossible. High yielding wells are usually constructed with an access pipe for a depth probe so that measurements can be made with the pump in place. Scientific investigations commonly use pressure transducers hooked up to data loggers or computers to measure and record ground water levels.

Many factors may influence well water levels. Rain and snowmelt can add water to aquifers, raising water levels. Periods of drought with no recharge will lead to falling water levels as ground water moves slowly to discharge points such as springs and rivers or is used by deep rooted vegetation. The water level in wells near the New Hampshire seacoast may be slightly influenced by tides. Atmospheric pressure changes can also cause small changes in well water levels. Low pressure may raise water levels and high pressure may lower them.

The water level in a well that is not being pumped will be the same pressure level as the aquifer into which it is drilled. In New Hampshire, the pressure level in most wells is the same as the water table level. When a well pump is turned on it causes water from the surrounding aquifer to flow towards the well. With continued pumping, water is drawn in from further and further away. When the pump stops, water continues to move towards the well, eventually restoring the static water level (the ground water elevation without any influence from pumping). Static level will vary with the season of the year and may be affected by how much ground water is being used in the surrounding area. Recovery in a well describes how quickly a well's water level returns to the static level after pumping. A quick recovery after pumping usually indicates that the well is connected to an aquifer with good water storage capacity.

A "popper" can be used by a homeowner to measure the water level in a shallow large diameter well, or in an unused well that has no equipment installed. A popper is made with 4 to 6 inches of small-diameter (1/2 inch) pipe that is closed at one end. A stout string or heavy gauge fishing line is attached to the closed end of the popper. When the popper meets the water it will trap air inside the pipe. When the pipe is pulled out of the water a slight "popping" sound (thus the name!) is heard. The popping can be audible at quite a depth. When the pop is heard, a mark is made on the string to show the water level depth.

Any unused well should have a sealed and tamper-proof cap. Never leave a well cap "open." Ground water is too precious to allow any risk of contamination.

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