**Well Water Capacity is a Draw Down Account**

If you have difficulty visualizing the situation underground, here's an analogy: Imagine that your well-water supply is an interest-bearing bank account with special features and restrictions. Drilling a well opens the account.

The good news is Mother Nature has already made an initial deposit, and will add to it annually. You pay a fee to open the account (drilling costs, pump, etc.), but needn't deposit funds before making withdrawals.

This seems great, but there are problems: you can't determine how big your account is, or the interest rate, so it's impossible to know the balance.

One restriction is a limit on how much you can withdraw in a given time period (so many dollars per day). You can determine that limit, but it won't tell you your balance or interest rate. Another restriction is a cap on the account. Even with interest, there's a maximum balance. The best possible situation is that interest exceeds withdrawals, and the account stays at the maximum amount.

Because of the cap, if your account starts with $10,000 and earns 30% annual interest, it won't grow to $13,000 next year if unused-it remains at $10,000. However, you could withdraw over six dollars a day and the high interest will keep the account full. Interest is paid only in certain seasons, so the balance might drop below $10,000 at times, but as long as interest exceeds withdrawals every year, it will always return to $10,000.

But what if your account starts at $3,000, with 10% interest? If you withdraw only one dollar per day, interest will not keep up with withdrawals. You withdraw $365 per year, but interest would be under $300. Your withdrawals gradually deplete the account. After many years, by withdrawing just a little more than is replenished every year, the balance eventually reaches zero, and you're broke.

Let's equate this bank account to your well: The account is the fracture your well taps. The interest is the recharge. The account balance is the total volume of available water in the fracture. The account has a cap because when the fracture is full, it can't hold any more water. The amount you can withdraw in a given time period is indicated by your pump test, in gallons per minute (GPM).

Recharge is water from natural sources that enters the ground and replaces water drawn from a well. Many people, including some so-called experts, think a pump test shows a well's recharge rate. Wrong! A pump test gives only the recovery rate at which water moves through fractures to your well. It tells you neither the recharge rate nor the total volume of water available.

A huge misconception is that a pump test tells whether a well is good or bad. Pump tests are used because they are the only practical tests to perform, and some information is better than none. A pump test tells if you can withdraw water from your well at a useful rate, but does not tell how much water you actually have or how long the supply will last. It may give you a false sense of security if you don't understand what it really means. Most people, even some engineers and geologists, misunderstand this. The idea that a 1 GPM well is poor and a 15 GPM well is good may or may not be true.

If the total volume and recharge rate are adequate for a 1 GPM well, you could use it forever and never run dry if you don't use too much in a short time (and if you do, the well will recover fairly soon). On the other hand, if the total volume is small and the recharge rate inadequate, a 15 GPM well may be pumped dry quickly, even if pumped at less than 15 GPM, and may run dry often unless allowed to recover for a long time (perhaps months or years). It will always be susceptible to being pumped dry quickly. So a 1 GPM well could be a good one, and a 15 GPM well could be lousy. A storage tank can help if the 1 GPM pump rate is an occasional problem, but will do little or no good for the 15 GPM well if the volume of water available and recharge rate are inadequate.

The critical point is that there's no practical way to know whether you have a good well or a bad one until it runs dry. Then you know you have a bad well. The best you can know is that it's been good so far, but that could end next week. Everyone using a well in the Evergreen-Conifer area should use water conservatively. The supply is NOT infinite, and yours may already be low. You won't know (and can't find out) until it's too late.

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