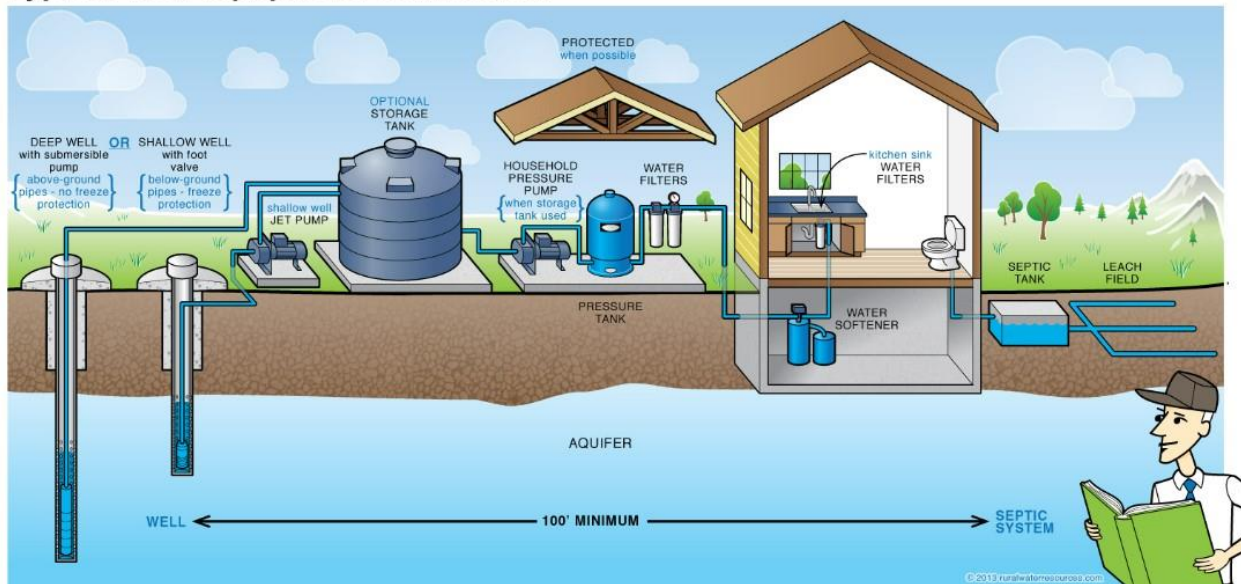


Why Does My Well Pump Into A Water Storage Tank?

Residential groundwater supply wells or springs commonly discharge to water tanks to collect and store water for later use and timely access. Water storage tanks come in a variety of shapes, sizes, colors, materials and configurations, and are an integral part of many rural household water systems. When you turn on your faucet, water is carried from the tank to your tap, providing you with fresh water on demand. Typically, storage tanks are coupled with a booster pump to supply pressure (*i.e.*, a pressure tank). Many water supply wells in Nicasio are low-pressure and low-recovery wells that are not capable of providing adequate water pressure throughout a household on demand. A storage tank connected to a pressure tank ensures that, when you turn on your shower or flush your toilet, you have immediate access to pressurized water.

In some circumstances, a well pump can be sized to convey pressurized water to a household. However, many wells in Nicasio cannot produce enough water, with satisfactory pressure, to meet the peak demands of an entire household. Failure to use a storage and pressure tank with a low yield well commonly results in short cycling¹ of the well pump, increases the cost of operating the pump, and reduces the life of the pump.

Typical Well Equipment Connection



Proper Tank Size

Although a typical Nicasio resident's daily water use may be higher, the average Marin County resident uses approximately 62 gallons per day.² One approach to selecting an adequately sized

¹ Short cycling of a well pump refers to the rapid turning on and off of a pump in rapid succession without completing a full operational cycle. Instead of the pump running for an extended period as intended, it starts, pumps a small amount of water, shuts off, then repeats the cycle.

² https://ca.water.usgs.gov/water_use/2010-california-water-use.html, accessed 8Aug2023. Domestic water use is for indoor household purposes such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and outdoor purposes such as watering lawns and gardens. Domestic water use includes potable and non-potable water provided to households by a public water supplier

storage tank is to determine the number of people in your household and then estimate the number of days per year when your well will not provide the water you need. For example, you may know that, in late fall, the water production from your well typically decreases or ceases altogether for a period of four weeks. For a two-person household, multiplying the per capita daily water use of 62 gallons per day by two (*i.e.*, 124 gallons per day) by 30 days yields 3,720 gallons. Under this scenario, it would be prudent to have at least 4,000 gallons of water storage to handle household needs for two persons. Optimally, you would want to increase that water storage capacity to allow for other water uses, such as firefighting and backyard irrigation.

Water Tank Location

Water storage tanks are typically located above or below ground.

Underground Tanks

Underground water storage tanks are favored in situations where there is inadequate land available to install an above-ground tank. Advantages of locating tanks underground include: protection from exposure to sunlight and inclement weather. In addition, owing to the soil around them, the water in an underground tank is maintained at a relatively constant temperature.

Above-ground Tanks

Above-ground water tanks are less labor-intensive and less expensive to install, and it's easier to detect any damage to, or leaks from, them. Disadvantages of locating tanks above-ground include: exposure to the elements, and the consequent damage to such tanks from storms or accidents, leading to increased maintenance costs.

Tank Material

Although some property owners in Nicasio have tanks built with wood or poured concrete, plastic is now the most frequently used material for water tanks. Tanks made of plastic are occasionally referred to as PE (polyethylene) tanks or poly tanks. Poly tanks are often chosen because they are less expensive, lightweight, rust-resistant, leak-proof, and dependable for water storage. Poly tanks are compact and relatively easy to install, clean, and maintain.

Tank Colors

Black or dark green above-ground poly tanks are preferred over light colored tanks. This is because, to the extent the tank does not block sunlight from reaching the water in the tank, algae and bacteria can begin to grow. Using a dark colored tank will reduce the growth of algae in the tank.

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(domestic deliveries) and self-supplied from wells or other private sources. If your home use greatly exceeds 62 gallons per person per day, you may want to consider implementing some of the rainwater and graywater re-use strategies discussed in this Committee's prior papers. Also, stay tuned for an upcoming paper that will list a variety of additional steps you can take to use water in your household more efficiently.