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Southeast Kansas Private Water Wells: Possibilities and Risks

Water wells can be a safe and effective way to bring water to livestock, gardens, or even a household. Generally, we use much more surface water here in this area than we do well water, but still, well water is possible. We also have an extensive municipal water supply with the vast majority of houses connected to it. Many residents have found a good use for water well, generally due to a high water need for livestock or greenhouses. Well water can be environmental too, as municipal water has to be treated and pumped long distances. This article will cover private and non-field irrigation water wells. Field irrigation-sized wells in southeast Kansas are a whole different size of scope, process, and regulation.

All water wells, whether domestic, irrigation, or environmental observation, are registered with the Kansas Geological Survey. An interactive map of these wells can be found on the Kansas Geological Survey website in the water well completion (WWC5) database. There you can find water wells near you, what they are used for, how deep the wells are, and how much water they are rated at.

Aquifers and Wells of Southeast Kansas

Our higher rainfall makes ponds for livestock more reliable; however, we do not have the extensive aquifers that other parts of Kansas have. As an example, according to the Kansas Geological Survey (KGS), Neosho County has less than 100 domestic water wells, while many counties outside of the southeast have over 1000 wells. That is not to say that we could not have more if we needed them. An ideal well for a household can pump at least six gallons per minute, which is about how fast a hydrant or bathtub flows connected to a municipal water supply. This is not hard to achieve from most water wells, but the overall flow rate depends on connection to an aquifer, a hydrological feature, and some luck.

There are aquifers in southeast Kansas but most follow the river bottoms. The Osage aquifer follows the Chautauqua Hills while the Ozark aquifer is on the very edge of the state in Cherokee and Crawford counties. Some of the Ozark aquifer is too deep to be useful. However, even areas outside of the aquifers can still find groundwater.

A good example of this actually comes from Amish communities that use well water for their houses, livestock, and horticulture businesses. According to the Kansas Geological Survey, their wells are generally between 60 to 160 feet and are rated anywhere from 1 to 30 GP. Household wells often can pump more than they are rated for and can increase over time. This is because over time sand is pulled from the bottom of the well leaving a larger “hollow” area that water can flow into.

Wells for Households and Commercial

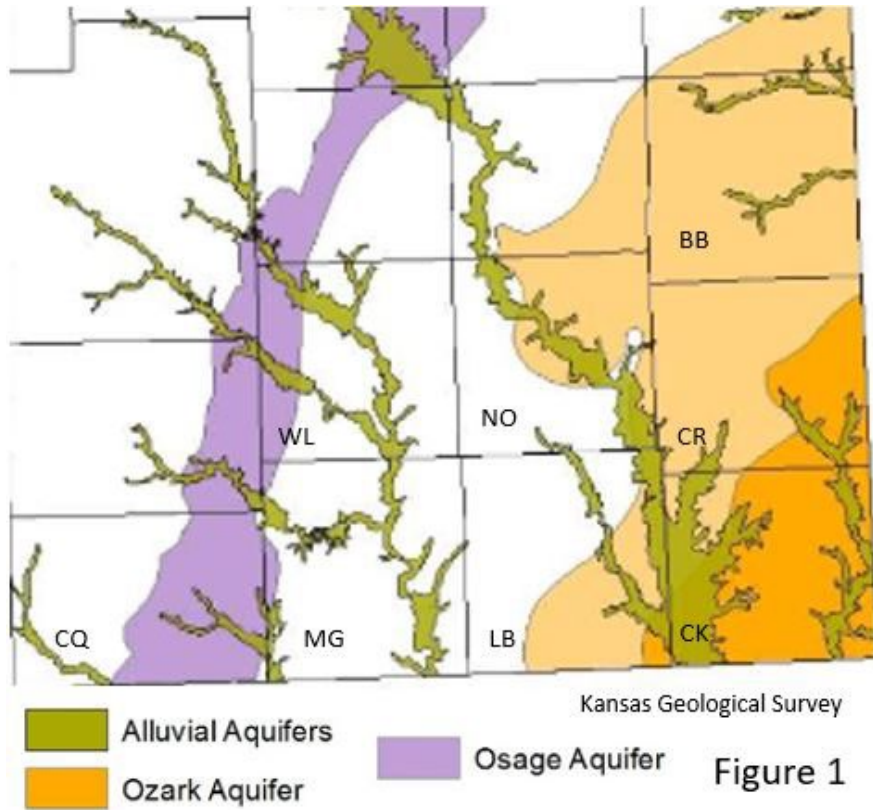
Several rules need to be followed to ensure that the water is safe for what it is being used for. Most of these rules are part of the construction of the water well that ensures the well is less likely to be contaminated from an outside source. Properly constructed and maintained private water wells should provide safe drinking water, but there are issues that water wells can have, including E. coli, coliform bacteria, nitrates, and in some rare cases, heavy metal contaminants like lead, arsenic, and selenium. Salts can be an issue of use but are rarely a factor of safety.

Wells should be drilled at least 100 feet away from any containment source like feedlots or septic fields. The top of the well casing should extend at least one foot above the soil surface and be capped with a sanitary air-tight seal. Surface water should flow away from the well for 20 feet in all directions.

Household water wells should be tested three to four times in the first year after the first drilling. After that, the Kansas Department of Health and Environment (KDHE) suggests testing at least annually for bacteria and nitrates. Other impurities and contaminants change more slowly over time in a functional well so these can be tested every three to five years. This testing frequency is for properly constructed and functional wells. Wells contaminated by surface water or a cracked well casing can cause water to become unsafe quickly. Water testing kits can be obtained from any K-State Extension office. From my understanding, the state of Kansas does not regulate any household water well, but some counties or cities might. There are however testing requirements for commercial vegetable farmers by the Kansas Department of Ag (KDA).

K-State Research and Extension does not endorse any specific business, but there are a few well drilling companies in this area. The cost of a well can be \$6,000 or more just for the well without pumping equipment, but can last for decades (at least the well itself). This makes a well for household use not very cost-effective. However, if you are using a lot of water in your landscape

or operation, a water well might be worth the investment. If you have any questions about water well safety, please give your local extension office a call.



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