**Why do wells go dry?**

Groundwater, which is found in aquifers below the surface of the Earth, is one of Canada's most important natural resources.

The water level in the aquifer that supplies a well does not always stay the same. Droughts, seasonal variations in rainfall, and pumping affect the height of the underground water levels. If a well is pumped at a faster rate than the aquifer around it is recharged by precipitation or other underground flow, then water levels in the well can be lowered. This can happen during drought, due to the extreme deficit of rain. The water level in a well can also be lowered if other wells near it are withdrawing too much water.

**What determines if a well will go dry?**

A well is said to have gone dry when water levels drop below a pump intake. This does not mean that a dry well will never have water in it again, as the water level may come back through time as recharge increases. The water level in a well depends on a number of things, such as the depth of the well, the type (confined or unconfined) of aquifer the well taps, the amount of pumping that occurs in this aquifer, and the amount of recharge occurring. Wells screened in unconfined water table aquifers are more directly influenced by the lack of rain than those screened in deeper confined aquifers. A deep well in a confined aquifer in an area with minimal pumping is less likely to go dry than a shallow, water-table well.

**How do I find out if my well will go dry?**

Wells screened in unconfined water table aquifers are more directly influenced by the lack of rain than those screened in deeper confined aquifers. This means that it may be more likely for the water level in wells screened in the water table to drop below the pump level and prevent water from being obtained. This does not mean that wells in a confined aquifer will not go dry, as they are also influenced by pumping rates and lack of recharge.

The type of aquifer from which you are drawing water also can make a difference. Aquifers are water-bearing geologic formations underground.

Some aquifers are continually replenished by rainwater that infiltrates the ground. Depending on the severity of drought, it can take multiple soaking rains over a period of time to replenish an aquifer that has experienced a significant lowering of the water table.

Wells typically do not go dry all at once. Rather, they slowly get worse due to lack of recharge. Often older wells that were drilled only into the top of an aquifer and did not penetrate the full thickness of the aquifer are the wells most likely to fail first.

However, some aquifers are sealed off from surface water replenishment due to an impermeable layer of rock. A well drilled into such an aquifer is drawing from a limited source of water which, when depleted, will not be replenished in the near future. In some cases, such aquifers
may take hundreds, or even thousands of years to replenish, and in these cases the groundwater is considered being “mined”.

**Diagnosing loss of water well’s productivity**

Even though you may be in an area of water scarcity, your well’s loss of productivity may be due to reasons other than a lowering of the water table. A qualified water well system contractor can determine the cause.

**Addressing loss of productivity**

When the problem is not a lowered water table, a well sometimes can be rehabilitated to yield substantially more water. Often various techniques can be applied to the well screen or surrounding geology to enable water to flow more freely into the well.

Other times, when the problem is a lowered water table, the well can be drilled deeper to extend its depth back below the water table. Deepening a well, however, does not guarantee that you will get more water. The size and condition of the well casing will dictate if a well can be drilled deeper. Have a reputable contractor inspect your well for its condition and viability to be drilled deeper.

In some cases, a new well drilled in a different location may be necessary to provide a more reliable water supply. A qualified water well system contractor can determine which option is best and explain why.