The Springtime Decline in the Aquifers

Every spring, the monitor wells in our network record a decline in the Trinity Aquifer. After staying mainly stable for most of the winter, even with continuing drought conditions, the decline is a routine event. At first glance, it might seem that the lack of rain to provide recharge to the aquifer is responsible, but there is more than meets the eye contributing to this event.

In the spring, the gardening and lawn season begins in earnest, and the trees and plants begin to ready themselves for another growing season. The monitor well network records the arrival of spring in no uncertain terms. The aquifer begins a decline which will last until fall of the year returns, barring large scale rain events. This decline is the result of the use of soil moisture by the trees and plants, and by increased pumping of water from the aquifers. In times of normal rains, these declines are offset to some extent by recharge from the rains. In times of drought as we have been seen for the last few years, the declines are much more dramatic.

The aquifers in Burnet County each show declines to different degrees and amounts. Even in the same aquifers, different monitoring wells show varying degrees of decline. Typically, wells in the more rural areas show less decline than areas where wells are more concentrated. There are a few monitor wells in the county which show no declines at all, and these are typically in isolated rural areas.

In general, the Trinity Aquifer will record its highest level of the year in early March and the lowest level in late September. This up and down pattern during a normal year can be has much as a 30 feet swing. This pattern has been shifted downward the last several years by extreme drought. The result has been an overall negative downward trend since 2010. The far eastern extent of the Trinity Aquifer in Burnet County has experienced the most dramatic water level fluctuations, as it is closer to higher population centers. Some of the most impacted areas have seen summer water levels decline by 25 feet since 2010.

The impacts of pumping each individual well may not be much, but the cumulative effect of many wells can create large areas of higher decline. The reaction of the Trinity Aquifer in this region is often slow; meaning after many pumps have turned off, it may be months before the pumping pressure is relieved. There are some areas that will experience an overall negative trend even if wetter periods set in.

The winter period has passed by with little to no recharge occurring to the local aquifers and the drought is still ever lingering. With the combination of these factors, forecasted warmer than normal temperatures, and the grim outlook for beneficial rainfall, this spring/summer promises to put more strain on area aquifers.

So, what does all this mean? During the next few months, conservation will become even more critical. The District has lots of conservation information, and would be glad to share this information with all interested parties. Just a small reduction in pumping in each of the private wells in Burnet County can make a difference. Please visit our website at www.centraltexasgcd.org to learn more about the monitor well network as well as conservation.