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Column: Safe yield poses two challenges

By JOHN ZAMBRANO Special to the Courier

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What are the difficult water issues facing the Prescott region and why do they matter? In our first water series column, on May 8, we described the Citizens Water Advocacy Group's mission and a little about who we are and what we do.

In this column, we provide some basic information about our region's two most challenging water issues. We will lay a foundation for future in-depth discussions of the issues that will determine our region's water future.

The Prescott communities overlie two underground formations, or aquifers, that serve as their sole source of drinking water. The two aquifers are the Agua Fria and Little Chino sub-basins, which together form the Prescott Active Management Area (PAMA). Groundwater in the Agua Fria aquifer flows toward and exits in the Agua Fria River heading south. Groundwater in the Little Chino aquifer flows toward and exits in the direction of the upper Verde River to the north.

The first difficult issue facing those of us who depend on the water from these aquifers is that more water is leaving than is entering the PAMA from both natural and artificial sources. Thus, the overall groundwater level is declining. This "more out than in" condition is an overdraft. This can't go on indefinitely; eventually our wells will go dry.

We need to achieve a long-term balance of the natural and artificial withdrawals and recharges. This balance is "safe yield." Arizona law includes safe yield as a goal and not a requirement; there are no regulatory penalties. The PAMA has been out of safe yield for some unknown amount of time, but measurably and officially since 1999.

When the state declared the PAMA to be out of safe yield, restrictions known as the Assured Water Supply rules went into effect. These rules prohibit the platting of new subdivisions using groundwater from the PAMA. New subdivisions must have so-called "alternative" water, i.e. any water other than groundwater from the PAMA. Two well-known examples of alternative water include treated wastewater recharged to the aquifer and the proposed imported groundwater from the adjacent Big Chino aquifer.

In spite of these restrictions, a few exceptions allow users to withdraw additional groundwater from the PAMA. The most critical exception is for wells that use less than 35 gallons per minute, typically for individual homes. These wells are "exempt" from the above restrictions or even from reporting the amount of water use. As we try to reach safe yield, we will need to account for the potential expansion of "exempt wells."

The second difficult issue we face is the preservation of the upper Verde River. The Verde River is one of the last continuous flowing rivers in the state, flowing from the Paulden area east and then south to where it joins the Salt River near Phoenix. Approximately 80 percent to 86 percent of the base flow of the first 24 miles comes from the Big Chino Aquifer, and about 14 percent comes from the Little Chino Aquifer. Base flow is the steady flow contributed by groundwater. Without base flow, a river is a dry wash with only occasional flow from storms.

The threat to the upper Verde River comes from the potential for additional withdrawals of groundwater from the Big Chino and the Little Chino aquifers. Because virtually all the base flow of the upper Verde comes from these two aquifers, their depletion would turn the upper Verde into a dry wash.

Although some parties who want to withdraw groundwater claim they can do so without ever reducing the Verde's flow, the U.S. Geological Survey tells us it would not be a matter of "whether," but rather of "when." But "when" shouldn't matter if we care about preserving the River for future generations.

Our communities want to import groundwater from the Big Chino to continue their population growth and to reach safe yield. But growth within the Big Chino can deplete the aquifer and harm the Verde River.

The two challenges we face are how to achieve safe yield and maintain a flowing river, two broadly accepted goals, while we continue to grow.

You can learn more about these issues and revisit the columns in this series at www.cwagaz.org. Please submit your questions and comments to info@cwagaz.org. Carol Erwin, Area Manager for the Bureau of Reclamation in Phoenix, will speak to CWAG on June 12. See www.cwagaz.org for details.

John Zambrano is president of the Citizens Water Advocacy Group and is a retired Environmental Engineer.

- [Coalition to discuss how to stop depleting aquifer](#)

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