

## Piping Water: How much is too much?

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ADA - "The issue of concern is not whether landowners should be able to sell their water. They can. The issue is how much water can be pumped from the aquifer each year without affecting the springs and streams adversely and how much is the proportional share of each water rights owner."

Thus says Dick Scalf, a member of the Ada Water Resources Board and environmental consultant who has planned, developed and directly participated in a national research program directed at the protection and restoration of ground water resources.

Scalf is among area residents concerned over the proposed transfer of water from the Arbuckle-Simpson Aquifer near Ada via an 88-mile pipeline to several communities just west of Oklahoma City in Canadian County.

Under present Oklahoma ground water laws, it is legal for a ground-water rights owner to obtain a permit for two acre-feet of water each year for each acre owned.

"This is over five times the Arbuckle-Simpson recharge rate of 4.7 inches," Scalf said. "The two acre-feet per year per acre is a number used by the Oklahoma Water Resources Board for all aquifers in the state until a comprehensive aquifer study has been made to determine the withdrawal rate that will pump the aquifer dry in 20 years, assuming total development of the aquifer," Scalf said.

Scalf also emphasizes that this is a depletion rate of withdrawal that is far from a sustainable yield.

Scalf says piping the water from Arbuckle-Simpson isn't practical.

"My reaction from the first has been that it would not happen because it is not practical from an engineering, economic, or political perspective," Scalf wrote in a recent letter to the editor. "However, more unlikely projects have been built and I have been wrong often enough not to be comfortable in that assessment," he said.

Scalf believes the pipeline, development of wells and pumping costs would be so large that a massive amount of water would have to be pumped to make it economically feasible.

"Although the Arbuckle aquifer, which has an average saturated depth of 3,500 feet, contains a huge amount of water in storage (approximately 9 million acre-feet: 1 acre foot equals 326,000 gallons), the rate of recharge (approximately 4.7 inches per year) limits the amount of water that can be pumped out of the basin without severely reducing or drying up existing springs and streams like Byrd's Mill Spring, Blue River, Pennington Creek and Mill Creek," Scalf says.

"I don't believe the courts and/or the Legislature will tolerate drying up a major river in the state. I don't even think a majority of the citizens in these communities supposedly benefiting from this high-priced water would approve of the project once they understand the environmental effects. It should also be noted that a diversion from the eastern part of the aquifer could set a precedent for the western aquifer, which would affect the flow of Turner Falls."

Scalf points out that the aquifer underlies about 500 miles, mostly in Pontotoc, Johnston and Murray counties. The western one-fourth of the aquifer is south and west of Davis in the Turner Falls area and not believed to be hydrologically connected to the rest of the aquifer.

The drainage area in the eastern part of the aquifer (about 359 square miles or 230,000 acres) lies primarily south of Fitzhugh and Roff, between Sulphur and Coalgate and north of Tishomingo.

The Canadian County communities propose to pump 70,000 acre-feet of water per year (62 million gallons per day or 23 billion gallons per year) from this area of the aquifer. Scalf emphasizes that this part of the aquifer provides the base flow for Byrd's Mill Spring (11,000 acre feet per year), Blue River (43,000 acre-feet per year), Pennington Creek (15,000 acre-feet per year), Mill Creek (4,000 acre-feet per year) and many smaller springs.

Scalf says the U.S. Geological Survey has estimated the average amount of rainfall that soaks into the ground and replenishes the ground water each year amounts to 4.7 inches (about 90 acre-feet per year over the 359 square mile drainage area).

"It doesn't take a hydrologist to understand that if 70,000 acre-feet per year is pumped from the aquifer each year, that leaves only 20,000 acre-feet per year total for Blue River, Pennington Creek, Mill Creek, Byrd's Mill Spring, and other springs and all the other users in this area," Scalf says. "It should also be obvious that if we have a drier than normal year, the Blue River and all the springs could conceivably dry up the first year.

"The problem with the ground-water law is the mining concept (allowing more to be pumped out than is recharged) that conflicts with laws governing surface water right," Scalf said. "There is no recognition of the interaction between ground water and surface water. Each gallon pumped out of the aquifer is one less gallon for spring or stream flow. A rancher with water rights to Mill Creek water could have a neighbor put in wells and pump dry the springs feeding the creek."

Scalf says nobody has a clue how the aquifer will react to long-term, high-volume pumping. Where and how fast does water move from one area to another? How does pumping in one area affect water levels, springs, and surface water flow throughout the basin? Are there areas of salt water that high volume pumping could pull into fresh water areas?

Scalf says these are some of the areas that will be addressed by a proposed five-year \$2.7 million aquifer study initiated by the Ada Water Resources Board and proposed by the Oklahoma Water Resources board. This study will be conducted by OWRB and the U.S. Geological Survey to build on the 1990 report and provide a better basis for OWRB for managing the aquifer, Scalf says.

"If I were contemplating a \$200 million, 50-year water development project on the Arbuckle, I would want a \$10 million to \$20 million study to assure that it doesn't end up costing \$300 million and last five years, versus 50 years," Scalf said.

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