Aquifer plays key role in county's future

MARK R. FLETCHER
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Alan Eades watched as one of his crews drilled a new well for the Sears store on Navajo last week. In a few moments, a little water comes up mixed with a fine reddish-brown sand.

The sand is part of the Ogallala Aquifer.

This well stops at 180 feet, instead of going all the way to the bottom of the Ogallala at about 240 feet. Eades, owner of Eades Drilling and Pump Service, understands that the extra cost deters people, but he knows in a few years he will have to put in a new well.

"The last two to three years the majority of our wells have been replacements," Eades said, "because of the declining water table."

In 1987 Eades put in a 180-foot well for a man living near the state line, and just last summer his well went totally dry. In 13 years the water table dropped more than 40 feet, Eades said.

Like a lot of people in Lea County, particularly since he makes his living from it, Eades worries about the future of the Ogallala.

"This water, it's going to get serious," he said. "We can live without a lot of things, but water's not one of them."

Lea County's water, and source of life, held in a vast underground "bowl" called the Ogallala Aquifer, will inevitably run dry — possibly spelling economic death for many of the county's farmers and businesses.

Leaders from across Lea County, however, don't plan to just let the water run out.

The Lea County Water Users Association commissioned a 40-year water plan that spells out a variety of conservation strategies to help the county keep its water as long as possible.

To understand those strategies, it helps to have a little background about where the water comes from today and to know something about the Ogallala Aquifer.

A turn-of-the-century geologist named N.H. Darton discovered the Ogallala in 1898, and named it for the nearby town of Ogallala, Neb. However, extracting water from the formation on a large scale didn't become cost effective until the introduction of 20th century pumping technology after World War II. Prior to that time, windmills extracted some water from the

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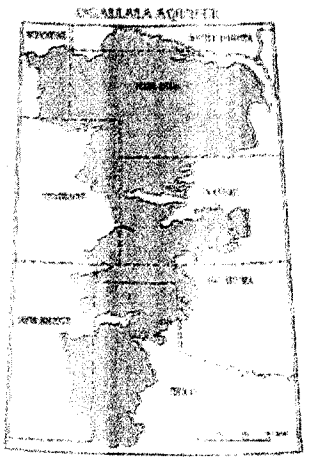

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Ogallala, but not enough to support large-scale agriculture.

The Ogallala stretches across eight states, all the way from Texas to South Dakota. It's also the largest aquifer in North America, containing 3.3 billion acre feet of water. An acre foot will cover one acre of land to a depth of one foot — or about 326,000 gallons. The water contained in the aquifer, if pumped out all once, would cover all 50 states to a depth of just over one foot.

That sounds like a lot of water, but even with the best technology, much of that water will remain beyond the reach of wells and pumps. And Lea County's share of that staggering amount of water makes up only a fraction of the total — estimated at 31,000,000 acre feet in 1999. Not only that, but with more and more farmers and ranchers tapping the aquifer across several states, the water supply drops that much more each year, seriously depleting the water level.

In some places, the water table dropped as much as 50 feet over the past 40 years.

The aquifer sprawls and serpentines unevenly underneath the eight states that lie above it. Lea County lies on the fringe of the Ogallala, and as the water runs out, Lea County will feel the Ogallala's death first.

"We're on the lip of the saucer of the Ogallala," said Lea County Manager Dennis Holmberg. "The deepest parts are in other places, so we will be among the first affected. We will feel it faster than others.

Estimates vary, but in Lea County the water could run out in as few as 40 years — or as many as 80 years or more.

How long the Ogallala lasts depends on how much water Lea County uses. According to the report, by the year 2040, water diversion in Lea County will more than double to about 360,000 acre feet — and probably more. The report anticipates that most of that increase will occur in agricultural uses, with the greatest increase in uses for livestock — 364 percent. The report also anticipates household uses increasing by 58 percent or more.

The net effect of more than 50 years of pumping water from an aquifer that replenishes itself by less than an inch each year is that the water level near Hobbs and along the New Mexico-Texas state line has dropped by 50-70 feet.

If all pumping from the Ogallala stopped today, it would take 1,400 years to replenish the aquifer to the levels that existed just 40 years ago.

Comparing the Ogallala to a large underground bowl that people across several states draw from probably makes it easier for people to understand the situation, but it's not literally a bowl or even an empty space a person could row a boat across.

If you planned to spend your next vacation basking on the dark and dank shores of the Ogallala, you'll feel greatly disappointed to learn that the Ogallala consists of a solid layer of waterlogged sand and gravel.

Roger Peery, the senior hydrogeologist with John Shomaker & Associates, said the bowl metaphor might make it easier to visualize, but it can also mislead people.

John Shomaker & Associates, an Albuquerque-based consulting firm with 27 years experience in water resource issues, along with Leedshill-Herkenhoff and Montgomery & Andrews authored the county's 40-year plan.

"That makes it seem like a big cavern, and maybe indicates you have more water than you really do," Peery said.

While the image of underground rivers flowing and cascading from room to room in a vast underground cavern isn't quite correct, the waters in the Ogallala do flow — but at a snail-like pace of less than 10 feet per year in most places. Water in the Ogallala flows from west to east toward the Mississippi River, and along the aquifer's eastern fringe it provides the water source for springs and small streams. As human use increases, many of those springs and streams have begun to dry up.

Lea County has investigated ways to artificially recharge the aquifer, but so far those methods have failed. Holmberg and others still hope advances in technology might make those efforts feasible.

Ultimately the best way to recharge an aquifer involves putting good, old Mother Nature to work, meaning a long and hard rain.

"Not necessarily high intensity storms, but longer duration," Peery said.

Unfortunately, rains like that are painfully rare in the desert.

Reporter Mark R. Fletcher can be reached at 505-397-4556, ext. 133, or at markmrf@hotmail.com.