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Is Lea's water supply drying up?

Levi Hill/News-Sun

Ask residents of Portales how important drinking water is and you're likely to get punched in the nose.

That's because tensions are high in the eastern New Mexico town as ongoing water restrictions have residents up in arms, especially when city officials throttle back the valve during the day and water from some faucets comes out at a trickle.

"It does come down to survival of the community," said Ladona Clayton, executive director of the Ogallala Land & Water Conservancy. "They are in dire straits. They have four wells not functioning and their existing wells are not producing enough."

On August 26, at the town's city council meeting, city officials said the town has curbed its water usage 20 percent since last year and is currently getting about 23,000 gallons per minute of water from the town's 48 wells.

"It is enough to sustain what we need but not enough for extensive use," Portales City Manager Sarah Austin told city leaders and the some 50 attendees at the meeting.

The woes of Portales residents are compounded by poisoned water supplies in the area thanks to the Cannon Air Force base outside of Clovis.

In 2018, the air force revealed specialized firefighting foams used by the base poisoned groundwater near the base.

The town's troubles have a solution — a 130-mile long water line from the Ute Reservoir currently in development — but that project has ran into hurdles and is not predicted to come online until 2031.

Hobbs uses the same aquifer

A 2022 report on the town's underground water supply, the Ogallala aquifer — the same aquifer Lea County uses — shows the aquifer has dropped 112 feet since 1970.

So could Hobbs and Lea County end up in the same situation at Portales?

Not any time soon, said Tim Woomer, City of Hobbs public works director.

"A lot of that has to do with their delivery system," he said. "These are mechanical systems that need to be maintained and properly built. A lot of these areas where water is an issue, it is not so much the supply, but not building certain systems to meet demand."

Still the Ogallala is a finite resource and one that is used by not only New Mexico, but Texas, Colorado and even as far away as Nebraska and Kansas.

“Kansas is talking to me. Colorado, Montana, Texas are all talking to me,” Clayton said. “Anyone who wants to know our model, I’m willing to help anyone we can. You better get on board and start doing something because you don’t want to end up in the same situation as Portales.”

Saving groundwater

Clayton leads the Ogallala Land & Water Conservancy, a non-profit established in Clovis to preserve the groundwater in the area.

To do that, the conservancy is paying farmers who have joined the partnership not to grow crops or to transition to dry-land farming.

Since 2021, the conservancy has kept 7.7 billion gallons of water in the aquifer.

“We lost 20 percent of our groundwater reserves from 2018 to 2023,” Clayton said of a study done on wells in the area. “That was alarming to us, but verified we were doing the right thing. We have farmers here telling us they were losing two feet a year from their wells. We have to capture the remaining water as soon as we can.”

With nearly $12 million in state and federal funding, the conservancy has enrolled 51 farm and dairy water wells in and around the air force base and kept those wells dormant by paying the farmers and ranchers a total of $1.67 million a year not to produce.

What the conservancy pays doesn’t fully match the lost revenues the farmers and ranchers might receive, but it comes close, and it’s a guaranteed payday in an industry full of uncertainty.

“It is offset by no expenses,” she said. “They are not buying fertilizer or insurance, or paying the electricity bill to pump that water, which is off the charts. I have one farmer, his electric bill easily runs $50,000.”

Among crops not being grown are hay, sorghum, pumpkins and corn, although Clayton said many farmers in the area have already transitioned away from corn because of the excessive water requirements of the crop.

Many of those farmers grow crops that specifically feed dairy cattle in the area. When asked how this would affect food and dairy prices, Clayton said the impact is negligible and dry-land farming has done well lately due to well-timed rainfall.

The goal of all of this is to support the military base, she said, and keep 80 percent of the water saved in the slow-to-recharge aquifer. The farmers who signed the three-year contract can either use or sell the remaining 20 percent of their water to municipalities.

“Our goal is to help Cannon and support the military station. It brings in $300-$400 million a year for Clovis and is critical for national security,” she said.

A healthy aquifer?

Clayton said everyone should be looking to start making moves to protect the groundwater from the Ogallala because aquifer recharge is so slow it is almost nonexistent.

By far, agriculture takes the biggest toll on the aquifer, which is the reason the conservancy was formed.

“Ninety-three percent of the groundwater is used by agriculture, primarily irrigation,” she said. “Only 7 percent is municipal use. One year in irrigation is four years of city water for Clovis.”

For two decades the region has experienced significant drought conditions, averaging just 11 inches of rainfall a year in the Clovis area. That compounds the problem of how slowly the aquifer recharges because it relies completely on precipitation to recharge.

However, the aquifer recharges through playa basins and when a dry playa receives a surge of water from rainfall the water flows into the clay layer via large cracks. These cracks eventually swell shut as the clay absorbs water making the basin impermeable.

Most of the Ogallala sits in these clay formation areas.

In fact, the aquifer is almost stagnant. Water from one zone doesn’t move to another zone.

“It doesn’t even move at the rate of one mile in 15 years underground,” Clayton said.

On the bright side for Hobbs, that means the dropping aquifer levels in Clovis and Portales don’t necessarily affect Hobbs, but the local aquifer reserves are still dropping faster than they can be replenished.

Is Hobbs going dry?

“The Ogallala is a mined aquifer, different areas have different capacities and life spans,” Woomer said. “Our area is drawing water at a higher rate than it is recharging. It’s not two feet a year. We are seeing more like half a foot or less a year.”

Woomer said most water studies look at a 40-year timeline so it’s hard to predict just how much water Lea County has before things get dire, but the number is at least heartening.

“At the current withdraw, we have in excess of 75 years,” he said. “But at some point the aquifer will be an issue.”

Hobbs, like many communities in the area, is reusing effluent water to irrigate city parks and in winter months when water usage drops, the city sends it to a farmer south of town for irrigation.

Woomer said Hobbs has also been forward-thinking and instituted water conservation policies that have saved millions of gallons of drinking water.

“Since 2015, we have saved an average of 350 million gallons per year with our summer conservation program,” he said.

Desal is key

Woomer said aquifer draw-down locally mirrors Clovis and Portales with 85-95 percent of the water used being done so for agricultural purposes. Industrial and mining is the second biggest user of the aquifer with municipal use coming in third.

However, that could change as technology develops.

Woomer said desalination technology is the future and could add decades of life to the aquifer by shifting industrial and agriculture water demand to brackish underground water sources and even produced water from oilfield drilling.

“We are positioned well on the Ogallala in Hobbs and this area to allow the technology to advance,” he said. “Our best bet is cleaning up the brackish aquifers. There is enough brackish aquifer water here to do everything and even turn brackish water reuse into a major industry.”

The State of New Mexico is currently funding studies in brackish water desalination technology and the implications thus far are staggering.

New Mexico’s oil and gas industry produces more than 60 billion gallons of produced water annually.

“The amount of economic development we could do with that amount of water supply, the amount of environmental improvements in the Pecos region, that’s a huge opportunity,” said Mike Hightower, program director for the New Mexico Produced Water Research Consortium, a compilation of oil and gas companies and stakeholders involved in produced water production and reuse.