

KQED

The Mad Rush for Groundwater in the Central Valley

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Most Californians are feeling the effects of the drought. But in areas of the state where people rely on groundwater, such as the San Joaquin Valley, the pain of this drought is especially severe. Wells are going dry and there's intense competition to find and pull more water from underground.

In a rural area about 30 miles north of Fresno, a drill pipe rotated as it burrowed deeper and deeper into the earth in a search for untapped reservoirs of groundwater.

If this well finds water, nearby homeowners whose first well has gone dry will use it. If the drill pipe doesn't hit water, people here, like many in this part of California who aren't hooked up to municipal water systems, won't have water without buying it.

And the drill has to go down pretty deep just to find out if any water is there.

"We will not hit water until about 380 to 400 (feet)," said drilling supervisor Daniel Reese, adding that drilling to such depths to find groundwater would have been rare just 15 to 25 years ago. Then, the maximum drilling depth would have been 200 to 300 feet.

So why drill deeper to hit water? Drought, of course — both past and present. Less rain means it's harder for aquifers to get recharged, and that presents its own problems.

Pumping water from ever-deeper aquifers causes the land to sink, and not by a few inches, but by feet. This is called land subsidence. You can imagine how this happens if you think of water as filling in between soil, sand and rock. When pumps pull the water out at deeper and deeper levels, the space between the sand and rocks squishes together and the land sinks.

Land subsidence can crack the surface of the land, crack foundations of homes, particularly older homes, and squeeze the capacity of the aquifer overall. Think about it — if the space between sand and rocks squishes together, and then the land sinks on top of it, it's hard for that space to expand to fill with water again.

Land subsidence has already reduced the amount of water that can flow through crucial canals and aqueducts. Today, the California Aqueduct, which brings water to some 3 million acres of farmland, carries 20% less water than it was designed for.

This cycle of drought drying up reservoirs, deeper groundwater pumping and the land falling in on itself spirals onward as climate change continues to affect drought and rainfall unpredictably.

All of this simply puts more pressure on the land, since people who live in the Central Valley, like people everywhere, need water to survive. So there's a kind of race in the San Joaquin Valley now to drill deeper and tap the water that remains.

In a sense, a lot of straws are going into the ground to get to that water. But do some people win and some people lose?

"The deepest straw gets the water. That's absolutely how it works," said Tom Collishaw of Visalia-based Self-Help Enterprises, a nonprofit that provides emergency water services and low-interest loans for private well construction in the San Joaquin Valley.

Collishaw says one result of groundwater overpumping is that the cost of drilling has soared.

"Well-drilling right now on a single-family household lot is costing \$60,000, where three years ago maybe we were paying \$25,000," he said.

So what do you do if you can't afford to drill or you need to wait until a drilling crew arrives? That's when many people put in giant tanks filled with trucked-in water.

Water-tank installation contractor Brandon Jones says his company installs as many as five tanks a day. When I meet him, he and his crew are at a home east of Visalia.

"So we're installing a temporary 2,500-gallon water tank," Jones said. "And that will get them temporary water until they can come up with a permanent solution for water, either a new well or connection to city infrastructure, which I don't think is out here."

The homeowner, Michelle (who doesn't want her last name used), says she hasn't had water since June, when her well went dry.

"It's like you turn on the faucet and nothing came out," she said. With the tank, she and her family can now bathe, flush toilets and cook. Even so, she considers this to be only a temporary solution.

"This is a Band-Aid until we're able to drill a new well and hopefully find water," she said. "When we get people to call us back and actually come give us an estimate, we'll know, because it's just so

hard to get through ... there are so many people in the same situation that everyone is extremely busy."



But there's another problem: Even if a property owner or community drills a successful well, the water that's found could be contaminated.

That's been a years-long issue in mostly poor and Latino communities in the Valley, such as Ducor, population just over 600.

There's groundwater in Ducor, but the water's too dangerous to consume because of decades of pesticide runoff from agriculture.

Local resident Alisao Aldaco says it's water that's safe for the plants but not to drink.

"No, you can't drink it," he said, as he watered his yard. "You can maybe even smell it? Just buy bottled water ... every week. You got to buy the water for the week."

So what's ahead for the San Joaquin Valley and the quantity and quality of its groundwater? Cleanup efforts of tainted aquifers are slow, or nonexistent.

The state is also implementing a massive groundwater management plan, but that will take years to see results.

Meanwhile the search for increasingly scarce groundwater continues. Back at his drilling site, Daniel Reese says he has a long line of desperate customers waiting.

"I'm averaging five to six months out," said Reese. "That's actually a pretty decent number, so we're pushing it. We're pushing it."

But Reese says he cautions his customers that the fact that he drills doesn't mean the water will actually be found — no matter how deep he goes.