

## DRILLING TO UNDERSTAND

By: STACI MATLOCK

A monitoring well sunk half a mile into the ground on Camino La Canada is giving city water planners new information about the water in the heart of Santa Fe.

"There's no information about water in the city deeper than 1,200 feet," said Jim B. Street, project hydrogeologist with John Shomaker and Associates.

Street, city water resources coordinator Claudia Borchert and others are collecting rock cuttings, water samples and water-flow data coming out of the well. Each gives the scientists different information about what's happening with the aquifer at that point, only a quarter mile from the Santa Fe River.

The total monitoring project will cost an estimated \$1 million. Contractors started drilling the well March 31. Drillers put a 6-inch diameter steel pipe casing in the well, then used cement seals to isolate seven different zones. Screens allow water into the casing for sample collection at different depths. They've finished testing five of seven zones so far.

Borchert said some people are concerned the city is going to pump the well for drinking water. "You can't put a big production pump in a 6-inch diameter pipe," she said. "The well for exploratory and monitoring purposes only."

The city is looking at installing new drinking water production wells in the future. Borchert said the city is trying to create a water system responsive to all kinds of conditions such as drought. In the future, Santa Fe will juggle three primary sources of water: two reservoirs east of the city, water drawn from the Rio Grande through a diversion project under construction, and the city's wells. The wells are seen as the backup, last-resort water -- something like a fund for nonrainy days when the river and the reservoirs are declining.

The city has the right to pump 4,865 acre-feet of water a year. (One acre foot equals 325,851 gallons of water.) It doesn't have the capacity to pump that much water if it needed to.

The 2,660-foot-deep well on Camino la Canada is next to the city's Agua Fria production well. "That is our best city well producer. If we want to explore where we should put another well that might be a better producer, this is a good place to start," Borchert said.

Borchert said the city has never had a "good handle" on how different layers in the aquifer are interconnected. Now, "we have 2,000 feet of the Tesuque (sandstone formation) here. How much does water at 1,000 feet talk to water at 1,500 feet? By

taking the discrete water chemistries and these pumping tests we'll learn more about how connected they are," she said. "That becomes important when we want to put in a new well. We have to understand the connectedness to understand the ramifications of putting in a deeper well."

Rock cuttings, taken from the bore hole as the well was drilled, help Borchert and others read the geology of the underlying ground and where the best water-producing zones are occurring.

Pat Longmire, a Los Alamos National Laboratory scientist, and Stephen Wiman, a geologist and owner of Good Water Company, are helping with sampling and measuring carbon 14 among other elements. "Carbon 14 isotopes help identify the origin of the water in the aquifer," Borchert said. "Is it from the mountain front? Is it from the Santa Fe River?"

Street said typically the deeper a well in New Mexico, the worse the water quality, such as higher levels of arsenic. So far, though, the well on Canada is proving fairly good quality water even at the deeper depths. Water at deep depths is older water and tends to dissolve more rock, Street said. Samples taken from the monitoring well will help scientists date the age of the water in the aquifer.

Contact Staci Matlock at 986-3055 or [smatlock@sfnewmexican.com](mailto:smatlock@sfnewmexican.com).

COPYRIGHT 2010 The Santa Fe New Mexican