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[News](#)  
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[Sports](#)

[Obituaries](#)

[Features](#)

[First Hour](#)

[That's Life!](#)

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## Officials confident in water supply at Cottonwood Hills

By Mary Clarkin

The Hutchinson News

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Rarer than a hole in one at the future Cottonwood Hills golf course east of Hutchinson will be the course's irrigation wells reaching peak output.

On paper, the battery of four irrigation wells is allowed to pump up to 800 gallons per minute. Actual output, however, will be closer to 400 to 500 gallons per minute, according to the development's president, Lane Neville, and consulting hydrogeologist Robert Vincent.

"The formation is not loose, high-yielding," said Vincent, owner of Ground Water Associates, Wichita.

There's "lots of water, from almost the top of the ground down," said Vincent, but very fine sand requires drilling multiple smaller-production wells rather than wells producing hundreds or even 1,000 gallons per minute.

The 18-hole course at Cottonwood Hills, East 4th and Buhler Road, is expected to be open to the public in spring 2006. Sales of residential lots could begin before the end of this year.

The irrigation wells are operating, and by late 2005 or early 2006 Clarke Well and Equipment Inc., Great Bend, will complete development of two other batteries, containing four wells each, designated for municipal use.

"Our wells better not go dry. They'll hear from us, I guarantee you," said Betty Kee, who lives on North Willison Road, a mile west of Buhler Road.

Kee and some other rural residents in the vicinity who rely on private wells signed a petition when the development was launched, presenting their objections to Reno County commissioners.

"We all signed it," said Susie Poe, another North Willison Road homeowner.

Increased traffic was a concern, too, Poe noted, but neither she nor Kee was surprised the petition failed to block the project.

Following the rules

Cottonwood Hills' water rights - still to be certified by the state - will be junior to existing rights.

If the project's wells affect other wells, state regulations allow harmed well owners to file an impairment complaint. If the Division of Water Resources finds impairment, the chief engineer can regulate or completely halt pumping by the junior water right holder, said Mike Dealey, head of Equus Beds Groundwater Management District No. 2.



Cottonwood Hills is within the Equus Beds GMD, and Dealey reviews all new permit applications filed in the territory.

"They did comply with our rules and regulations, and we did recommend that they be approved," Dealey said.

The batteries will be metered. The annual appropriation for the two municipal batteries will be 224 acre-feet of water and for the irrigation battery, 280 acre-feet, according to Dealey.

An acre-foot refers to the amount of water needed to cover an acre to the depth of 1 foot. One acre-foot is roughly equal to 326,000 gallons.

Neither the Equus Beds GMD nor state water regulators in Topeka would have approved the capacity, Neville said, if the water wasn't there.

As efficient as possible

Cropland irrigators need large volumes of water that can be pumped quickly and cheaply. That's why the Cottonwood Hills land was not irrigated farmland prior to the new development.

"We're just not going to find any wells out there that pump several hundred gallons per minute. That's just not going to occur. So you have to put in more wells and spread them out," Vincent said.

Another consideration was maintaining distance from existing wells. Each center point of a battery must be at least 1,000 feet from the nearest domestic well, Vincent said.

Because of the project's large scale, driller Darrel Clarke advised Neville to bring Vincent on board to recommend well placement and design.

"You have to be very precise in your well design, so you pull it out as efficiently as possible," Neville said.

"We went all the way to Colorado to get our backfill sand for our wells," Neville said. "Why? Because it had the perfect coefficient of what we were looking for."

To describe the challenge presented by the formation, Vincent used the example of thick underground clay that could have up to 40 percent volume of water but would have low permeability.

"That's the same thing that happens with very fine, silty sand. We have the water there, but we don't have the permeability," he said.

The irrigation wells are pumping on the golf course, and both Neville and Clarke noted that rapid recharge is one of the characteristics of the aquifer.

Plans call for establishing a private water district at Cottonwood Hills.

"We have extremely high-quality water here, probably because it percolates through 120 feet of sand," Neville said.

Typically, a little chlorine is added, he said, but the groundwater won't necessitate a water treatment plant.

Kee also attested to the area water's quality.

"We have excellent, excellent water. We had it tested, and they wanted to know where we got the water because it was so good," she said.

'Appears to be'

Cottonwood Hills was designed to accommodate well over 1,000 residents, and that's one of Poe's concerns.

But Neville said the demand on the irrigation wells actually will be eased by the arrival of residents, because effluent water will supplement irrigation well water.

With 150 to 250 residents, he said, Cottonwood Hills will produce about 50 percent to 60 percent of its golf course watering capacity and pumping of irrigation wells will be reduced.

"We're ecologically, environmentally sound," Neville said of the water reclamation plan.

Plenty of testing has occurred in the area, Clarke said, but the exact boundaries of the aquifer cannot be calculated.

Vincent said he was not asked to conduct a detailed investigation in the area.

Does he think there is sufficient groundwater to sustain a golf course and community?

"There appears to be, yes," he said.

10/29/2005; 02:30:51 AM



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