Sheaffer combines best of two technologies

New aeration system tackles wastewater with ease, efficiency

By Chris Loynd

David Harms was concerned when he heard the new Tustin Ranch Golf Course would be supplied by water from a treatment plant.

"Reclaimed water is great because it lessens demand on the domestic supply," said the Yorba Linda, Calif., builder. "We've built a lot of courses that have reclaimed water. There's always a multitude of problems. The water is so salty it kills the grass. Or there's a slime build up on the water surface and it floats over the shoreline. You can get all kinds of real bad situations."

But Jeff Alderman of Alderman Engineering, who designed the Tustin, Calif. course's three effluent-filled lakes, convinced the developer, The Irvine Co., to try a relatively new water treatment system. The system sends activated oxygen into the water through leaded air lines along the lake bottom.

"An important quality of these powerful short-lived oxidizing agents available. All necessary equipment, lamps and compressor, are placed in a small shed or underground vault. The system requires little pressure. Electricity use and maintenance are lower than aeration systems for a comparable-sized pond.

"An important quality of these powerful short-lived oxidizing agents is that they convert back into oxygen and water, leaving no harmful residuals or toxic buildups," Sheaffer said.

The system is particularly effective where efficient is used for irrigation, an increasingly common situation with water shortages cropping up across the country.

Two of Tustin Ranch's lakes are 4-1/2 acres. The third is under an acre. One of the larger lakes feeds the course irrigation system of 2,000 sprinkler heads. That lake is drawn down anywhere from 200,000 to its maximum capacity of 800,000 gallons per day to supply the sprinklers.

"Clarity in the two self-contained lakes has been excellent," said superintendent Steve Plummer. "You can see six to eight feet from the bank to the bottom. The irrigation lake isn't quite as clear because it keeps getting replenished by reclaimed water. There's probably a four-foot-deep visibility from the bank. But there has been no odor and minimal surface scum and nuisance algae on any of the lakes."

The system has attracted attention from area superintendents and developers, said Alderman.

"We're getting calls about other golf course lakes where they're using effluent water and having some real problems. There are serious concerns when using sewage water in lakes that don't have an activated oxygen system. Number one, they smell. Second, they're a health nuisance. But most importantly, these lakes don't fulfill their original mission, to add aesthetic value and beauty to the golf course," Alderman added.

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"Aeration alone can cut down on odors by keeping dissolved oxygen levels high enough to prevent anaerobic decomposition. But aeration does nothing to affect the levels of dissolved nutrients that feed successive algae blooms."

— Ron Sheaffer

The waterfall at Tustin Ranch Golf Course.