



This water-efficient low-pressure irrigation system at Canyon Country Club is also a money-saver.

IRRIGATION REVELATIONS

Low-pressure irrigation combined with computerized controls spelled an annual savings of 50 percent for this California country club.

A quiet revelation has come over the Coachella Valley outside Palm Springs, Calif. Industry experts say the revelation has the potential to drastically change energy and water usage by turf managers, particularly in arid and semi-arid locations.

The Valley has more desert golf courses than anywhere in the world. In October, 1986, the area also became the site of the first irrigation installation to combine low-pressure sprinkling with a computerized control system.

This revelation is that turf managers can use low-pressure sprinkler heads for varied energy savings; that they can also control their precipitation rate, and match actual evapotranspiration rate (ET), unlike ever before.

Center of attention went to Canyon

Country Club, a typically-lush desert golf course surrounded on three sides by the Santa Rosa mountains where Richard Ameny is general manager. He, more than any other person, deserves credit for combining the two concepts, low-pressure and computers.

The local power company, Southern California Edison, showed an interest in developing alternative technologies and products that would allow golf courses to use less water and consequently less energy on a continuous basis. That interest led Edison's Tom Olson to low-pressure sprinkler heads, a new technology that had been in development at various irrigation manufacturers for a number of years.

Low-pressure heads operate effectively at much lower P.S.I. than regular sprinkler heads, and the pumps

are able to do their job in less time. With pumps operating for a shorter time span, the off-peak demand period was a possibility for golf courses and other turf areas.

Ameny had come to Palm Springs from Washington State, where he gained years of turf management experience in a humid and wet environment. Ameny had promised the club's board that he would effect major reductions in the maintenance budget, and still maintain the course's lush, well-tended appearance.

First, he changed certain management practices that immediately dropped Canyon's fixed maintenance costs by \$25,000. To really affect the course's \$850,000 budget, however, he needed to do something dramatic.

That's when Olson suggested low-pressure irrigation.

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After his talks with Olson, Ameny contacted the three manufacturers who were then touting low-pressure sprinkler technology, and asked each to install products in a test plot he had laid out on the golf course. The ultimate winner was Toro's 660 Series of low-pressure heads, which "performed faultlessly," said Ameny.

Canyon's membership board was ready for the installation. The proposal for a new, more efficient irrigation system had been made three times in three years, but it took the energy savings of a low-pressure system to convince the board that the cost could be quickly amortized. Olson notes that Ameny deserves a lot of credit for switching to low-pressure heads at a time when other courses had not taken the leap.

"It's a close-knit world among the desert courses, and they're somewhat conservative," says Olson. "These courses are beautiful and prestigious, and not many general managers or superintendents in the area are risk-takers. They want to see what the other courses are doing before they commit to a new way.

"In this case, the timing was good, because Ameny was ready for something new, and maybe his being from outside the area made him more open to other ideas. I have to admit that I didn't see much beyond the energy savings that were going to result from low-pressure sprinkling, but Dick did: they've had savings from labor, fertilizer, chemicals and the amount of water they need."

While Tom Olson brought low-pressure irrigation to Dick Ameny's attention, Ameny himself investigated another new concept, computerized irrigation control. He questioned if there was any reason why the two recently-developed technologies couldn't operate together, for even larger maintenance savings.

Toro's Network 8000 combines a central computer with stand-alone satellites. It was developed to solve the problem of accurately measuring a turf area's actual demand for water through evaporation (ET) loss (see "More eyes for turf managers" on page 20).

Having made his choices in product, Dick Ameny worked closely with all of his contractors and suppliers. "It's unusual for a general manager to



A state-of-the-art Toro Network 8000 system like the used at Canyon Country Club.

get as involved in a new irrigation installation as Ameny did," observes Olson, "but then again, all concerned knew they were breaking fresh ground."

The Canyon "groundbreakers" included consultant Roger Gordon, who designed the new irrigation system; Pacific Equipment and Irrigation Company, the distributor who supplied the products; and McCalla Brothers, who installed a new well. Foremost Construction Company, which installed the system and advised Ameny on the intricacies of the massive installation, was also important to the project's overall direction.

Gordon notes that, having decided to proceed, Canyon and Ameny moved quickly. "We essentially had three months to totally revamp the old quick-coupler system," said Gordon. "Most club members leave in April or May, so the system had to be installed between then and September, in order to be ready for the overseeding period.

"The old Bermuda is dethatched and the course is reseeded with ryegrass so it'll be picture-perfect when the members return from other parts of the country." The installation was "smooth as silk," he says. "There were minor problems, such as bringing all the pipes, communications cables, and electrical wiring under the four or five street crossings, but preparation and working with an experienced contractor are two keys to success.

"Between the lack of water and humidity and the winds, the Palm Springs area in general is hostile to growing grass, and you have to make it happen in spite of itself. Still, the Canyon job was the most effortless way I've ever forced anything.

"The satisfying thing was that the

course immediately took less water than before, got a better start on the new grass, and the members were able to get out and play on it sooner. And that system really got the test of its life the first time out of the box. If a course down there can make it through reseeding, it can make it through anything. When it's applicable, I'm convinced that low-pressure is the way to go. The heads don't cost any more than other products, and you could literally take every installation my company has done over the past 20 years, screw out the old heads, screw in new low-pressure heads, and be in business.

"After making appropriate changes to the pump station and lowering the P.S.I., you'll immediately get a lower electric bill."

The Canyon system has been operating since the first week of October, 1986, and projecting current costs through the remainder of the year, Ameny says his water and electric bill will be \$40,000 less in 1986-87, for nearly a 50 percent reduction.

In addition to taking advantage of the off-peak demand period, the low-pressure heads allow the golf course to use one new well (rather than two older, less-efficient wells), and reduce the booster station pressure to 80 P.S.I. from 135 P.S.I. The precisely-calculated ET data from the controller afforded further water and energy savings. The first-year maintenance savings includes a workforce reduction of two full-time employees who were necessary with the old, labor-intensive quick coupler system and further savings on fertilizers and chemicals that previously leached out much more quickly.

The total maintenance budget for 1986-87 is expected to drop by \$113,000 or 14 percent.

For the turf management industry, the development promises even more. As Toro's Terry Mylne notes, the industry has moved from "gut feel" estimates of ET demand to a precisely calculated equation and a method of dispersing it efficiently.

Perhaps just as important for the future of water conservation, the marriage of new irrigation technologies, and their availability to virtually everyone, assures that the turf industry can take a leadership role in overseeing world water resources wisely and judiciously. **LM**