# Computerization updates municipal courses' irrigation

By using solid-state controllers instead of electromechanical models in the irrigation systems at its two municipal golf courses, the City of Everett (Wash.) realized a myriad of benefits: improved reliability, more versatility, precise control of the irrigation cycles, and substantial savings in initial costs, labor, water, and energy usage.

"The solid-state controller was very attractive to us for a host of reasons," comments Superintendent Patrick M. Russell, park/golf maintenance, of the city's parks and recreation department. "For example, its initial cost was about 40 percent less than electromechanical units. The solid-state design enhances reliability because less circuitry is required, a feature that reduces the possibility of malfunctions. This advantage, plus the fact that there are a minimum of moving parts, ensures a much lower frequency of maintenance than would have been incurred with electromechanical types."

"Versatility is another attribute that influenced its selection, remarks Jack R. Donis, irrigation consultant from Eugene, Ore. "Historically, separation of green, tee, and fairway irrigation usually required two or more field controllers per fairway. By contrast, all the electric valves and valve-in-head sprinklers for all three locations are wired to a single controller, enabling it to handle a complete golf hole. By simply 'assigning' the various irrigated areas to separately programmed 'groups' on the field controller, the desired control is accomplished at considerable cost savings over conventional systems."

"This ability to subdivide groups and subgroups means that we can water areas on demand without activating the entire system," adds Russell. "This pinpointed control can even be applied to a single sprinkler. Moreover, the irrigation timing cycles are extremely accurate. Since water usage is so precise, the demands on the pump are more evenly distributed. This enabled us to reduce the size of the booster pumps needed, effecting significant savings in energy consumption."

The city official further notes that

*Rotary pop-up heads are controlled in pairs by individual electric valves (above). Controller operation is explained by J-M's Don Fosness (center) to Everett Maintenance Superintendent Patrick Russell (right) and Golf Course Supervisor Tracy Powell (left).*

the use of one field controller per golf hole allows total visual control. "We can see what each station is doing when it is performing its particular function. Problems can be immediately spotted. To achieve the same degree of control with other systems, we would have needed at least 40 percent more field controllers."

**A definite improvement**

Previously, irrigation was achieved with quick-coupler systems at both the Walter E. Hall and the Legion Park Municipal Golf Courses. This technique was used to water the entire course at Hall, but only the greens and tees at Legion Park. This was a manual operation that involved a heavy amount of costly, time-consuming handling. Also, watering was not uniform because of the human error factor inherent in this method. Frequently, areas of the courses were either flooded or not watered at all.

The solid-state control system remedied these conditions. Consisting of a micro-processor that controls a wide range of irrigation functions and a calculator-type keyboard that, with a human input/output interface, feeds instructions and changes in programing to the controller, the control system provides an automatic, precisely regulated irrigation cycle.

"The improvements afforded by the computerized system have had a substantial effect on our costs," says Tracy W. Powell, the golf course supervisor responsible for the maintenance of both courses. "At Hall alone, we saved $10,000 to $12,000 in labor costs. Materials costs were reduced by about $700 to $1,000. Furthermore, water coverage is consistent—which is of particular value at Hall because of its hilly terrain. We now get green grass without the problem of standing water. Repair work, especially on the fairways, is faster and easier. The system even changed our fertilizing program. Now we use a more economical fertilizer and can water it in immediately."

"The flexibility of the system allows us to do things we could not do before," continues Powell. "For example, we can punch in a syringe cycle

*Two keyboards play a role in the Everett system. The desktop central processor (left) can be used to program any one of the field controlled groups or subgroups. The field controller (right) is situated by the part of the course it controls.*

that will remove dew and reduce a fungus problem that is of particular concern in the fall. Also, we can put in a skip day cycle in the event of inclement weather. Watering schedules can be altered, depending upon need and season. In the spring, we provide an average 15-minute irrigation cycle, although some areas may have only a 10-minute sequence and others will be watered for as long as 25 minutes. Repeat cycles can be added on demand. In the summer, we increase the number of repeats. In the fall, we step down towards the spring schedule. All of these variations and much more can be easily and quickly programmed into the controller by simply punching the necessary data into the keyboard. No special skills are required to operate the controller."

**Expeditious installation**

The landscape contractor for the job also lauded the system. Cliff Paul of Paul Brothers, Inc., of Portland, Ore., noted that installation was so fast and simple that the courses did not have to be closed and player disturbance was kept to a minimum during the construction stage. "We were able to complete both courses in 90 days," says Paul. "Other systems would have required at least 10 more days, which would have increased our costs by about $10,000."

A major assist in curtailing course disruption was the use of equipment that had been specially designed by the contractor for the project. For example, dual-wheeled, wide-flotation-tired trenchers and an auger-type back-filler were utilized to avoid tearing up the course or leaving unsightly marks on the turf. The pipe-laying technique employed by the contractor also kept course downtime and damage to a minimum. The main line was installed on the side of the fairway and all laterals were pulled across the fairway under the surface instead of being laid in an open trench.

Paul also pointed out that the flushing and testing sequences were facilitated by the controller. Continuous reprogramming was not necessary because the unit's simplified manual override supersedes the assigned program. After the tests are completed, the controller automatically resumes its designated program.

"Since the entire system — controllers, valves, sprinklers — came from one company, Johns-Manville," the contractor remarks, "We did not have to 'mix' or 'match' incompatible components. The delays, downtime and other problems usually associated with this practice were averted."

At the Legion Park course, the irrigation system consists of two parts. The fairways are arranged in a block pattern using 485 model 8350 rotary pop-up sprinklers controlled in pairs by 242 model 930 electrical control valves. Over 85 model 8750 rotary pop-up valve-in-head sprinklers are used on the tees and greens. Eighteen KCS-24FC field controllers are used.

The model 8750 sprinkler is used exclusively at the Walter Hall course. In addition to the 638 sprinklers, 20 KCS-24FC field controllers are used. Both courses can be centrally programmed from the supervisor's office with a single central processor (KCS-CP). Conveniently sized for placement on top of a desk, the unit can be programmed to address any one of the field controller groups individually. In addition, all or any one station of the subgroups within a field controller group can be activated from the central processor., □