Irrigation design, pump house technology continue to meet, or exceed, industry standards

Today, radio control... 
Tomorrow, relative humidity & soil moisture?

By HAL PHILLIPS

The future of golf course irrigation is here — but only to an extent. Computer-controlled heads and valves are old hat, while radio-control technology — allowing individual head manipulation and in-the-field versatility — has made its sizeable mark on the industry after only a few short years on the market.

However, when it comes to innovation, some members of the irrigation/design field feel this market segment has only scratched the surface.

“We’ve got this enormous computer and all we’re doing is turning heads on and off,” said Dr. Michael Hurdzan, principal of Hurdzan Design Group of Columbus, Ohio. “I think we’re going to start to see overall sensing packages.”

“Environmental monitoring in terms of weather stations can be a joke. We need to measure soil moisture at different depths; soil temperature at different depths, relative humidity. We need to monitor air movement. I think we could probably even flirt in light quality, quantity and duration.”

“The new breed of superintendent is going to want to know this type of stuff. And I think we’ll see it by the year 2000.”

Of course, Hurdzan’s wish list isn’t necessarily irrigation technology. Indeed, most irrigation systems now tie in with weather stations in order to conduct, among other things, evapotranspiration testing. Considering both Toro and RainBird use the same weather station vendor, Campbell Scientific of Utah, will there come a day when irrigation firms manufacture their own weather stations?

“Perhaps we will get into the weather station business,” said RainBird’s Rod McWhirter, speaking of his company and its primary competitor, Toro Irrigation. “It’s a very sophisticated device and neither firm can justify the cost of manufacturing at this point.

“We both tie into weather stations. We both take atmospheric readings and calculate turf-water use using a formula called the Penman Equation. It’s accurate enough. It’s very accurate, as a matter of fact.”

McWhirter doesn’t see soil-testing as a goal worth pursuing.

“There is a misconception that you can get a better reading from taking soil probing tests,” he said. “Perhaps you could, but you’d have to take so many readings from so many different places, it wouldn’t be worth it.”

For now, the cutting edge in irrigation technology involves radio-controlled programming and head manipulation. Radio waves allow for mobility and, because there are no wires or cables, retrofitting doesn’t require digging up the course.

The collaboration of Toro and Motorola produced the industry’s first practical application of this technology, the OSMAC (On-Site Management And Control), which is basically a paging system adapted to irrigation. With OSMAC, every sprinkler has its own valve and each one is controlled by a master valve on the course. OSMAC ties it all together with the central computer.

“It gives you the most flexibility when it comes to in-the-field programming,” said Patty Knaggs, superintendent at Hazeltine National in Chaska, Minn., who explained, “if there’s the slightest lack of pressure, we pressure and, obviously, you don’t waste as much water. But the money you save in repairs is substantial.”

While VFD technology has been available for more than 20 years, and the concept of conserving water and energy — through modification or installation of VFD — is becoming more popular, thanks mainly to the efforts of two Texas firms: Carroll Childers Co. of Houston and Flowtronex/PSI of Dallas.

Bent Pine Golf Club in Vero Beach, Fla., doesn’t yet own a VFD pumping system but plans to purchase one as part of the work according to superintendent Scott Bell.

Energy and water savings are a given, Bell said. But pipe longevity will provide the additional benefits. “With the current system,” Bell explained, “if there’s the slightest lack of balance, the water hammer comes down, leaks start popping up and the pipes start breaking. With what we have now, you get the same pressure for one head as you would have for six.

“With VFD, you only get the horse-power you need. I’m really looking forward to it.”

Watertronics of Hartland, Wis., achieves the same results without the aid of VFD. Instead, Watertronics pumphouses rely on solid state technology to save water and energy, while also eliminating the dreaded water hammer.

“We emulate VFD operation,” said Bob Emmertich, sales and marketing manager at Watertronics. “One of the things our owner and his team have done is apply the electrically actuated butterfly valve for pressure regulation of a station. There are some benefits to this: We pressure regulate per pump. When the pump starts, the valve is still closed, so we stop any surge going down stream.

“When it shuts off the valve closes as well, stopping a surge. We feel we can save as much water and energy, if not more, using this system.”

“Then there are some very practical applications of the VFD — Don’t get me wrong. What we say to the user is, What are your practices? Greens alone? Tees alone? When we get flow ranges, we can just be as efficient.”

Diffusing the dreaded ‘water hammer’ means savings via pipe relief

By HAL PHILLIPS

Superintendents have discovered hidden savings attached to the latest in pumphouse technology, making the ability frequency drive (VFD) even more popular.

As more units are installed in the field, superintendents are beginning to realize savings taking place.

“There’s no water hammer when you turn the system off,” explained Kevin Ross, superintendent at Falmouth (Maine) Country Club. “No question: The pipes in the system survive better with a VFD.

“The manufacturer guarantees a 15- to 20-percent reduction in energy savings and savings with regard to pipe repair. But you’d have to take so many readings from so many different places, it wouldn’t be workable.

“What little criticism of OSMAC has come, mostly stemmed from its ties to paging technology. Because it’s a one-line system, any reprogramming must be done from the central computer.

“I don’t really have a problem with that,” said Scott Bell, superintendent at Bent Pine Golf Club in Vero Beach, Fla., and president of the Florida Golf Course Superintendents Association. “The way we water, and with water so unpredictable in
Asian roundup
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designed course and an Arnold Palmer
track.
Player’s Blue Canyon course in Phuket,
Thailand, played host to the 1994 Johnny
track.

Asian roundup
freeze on golf course building permits
planned.

JAKARTA — Construction crews are
working on the 18-hole Belhai Golf Course,
located in the southern Chinese city of the
same name, in Guangxi Province. China’s “official”
freeze on golf course building permits was
issued directly after Beihai received its
go-ahead.

In Indonesia, construction continues
on Royal Jakarta, an 18-hole course inte-
grated with the Royal Sentral Highlands
development. A summer 1996 opening is
planned.

Owned by Lippo Bank, the 88 million
project will have six sets of tees and over
more than 7,000 yards from back tees. Eddie
Easley said on Monday, “the course was
created out of heavy clay soil, crews are performing
the rare task of spreading 3-1/2 to 4 inches
of sand over most of the course. “It’s really
going to help because the clay is so bad,”
Easley added.

KOBE CITY, Japan — Six years after
developer Shigeru Matsui dreamed up
Maiblu International Golf Club, ground
is scheduled to be broken here in Octo-
ber.
The 18-hole Robert von Hagge design
received government approval in 1993,
but delays have dogged the project until
now, according to von Hagge design as-
sociate Mike Smelek. Kajima construc-
tion Co. is handling the course building
process.
Just north of Kobe, von Hagge Design
Associates has finished a 9-hole addition
to Arima Royal Golf Club. The new nine
should be open for play come spring 1995.
Renovation of Arima’s fourth nine —
another von Hagge project — begins in
November.

Elsewhere in Japan, in Yamanashi Pre-
fecture, construction at von Hagge’s
Minobu Golf Club should be completed
by October, said Smelek. The five first
holes are ready to plant and the course has
scheduled a summer 1995 opening.

SINGAPORE — Golden Bear Interna-
tional, which includes Nicklaus Design,
has moved its headquarters here. Mark
Hesemann, general manager of Nicklaus
Design, can now be reached at 133 New
Bridge Road, #21-01 to #21-10 Chinatown
Point, Singapore 0105. Telephone: 65-538-
6912; fax: 65-538-2468. GBI will continue
to maintain an office in Hong Kong.

Pumping stations: Stopping the hammer
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Patty Knaggs, superintendent at
Hareshaw Golf & Country Club in Chaska, Minn.,
is a Watertronics fan.
“I inherited one and it’s been great,” said
Knaggs. “It does all the things VFD does and its service has been
fantastic.”

Of course, the current technology can outstrip a superintendent’s needs — and as such was to cope with heavy rain-
ation. The course, they stated, also was to
be formed, using an imported and very
special sandy growing medium mixture.

Ross, on the other hand, couldn’t be
happier with his VFD.
“It’s been absolutely awesome since we
bought it,” said Ross. “Three pumps:
big ones and one small jockey pump.
They used to be on and spin at the same speed, but VFD changed all
that.
“I’ll be honest with you: I used to visit
my pumphouse every single day. Now
I’m feeling a bit guilty because I hardly
ever go out there.”

One of the hard parts is my highest
pressure is 80 psi. So I can’t turn on all
the heads at once, but we can do the
whole course in two shifts.”

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British lawsuits
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Formerly a somewhat routine and lack-
luster (albeit staked in striking Thomas
Hardy country) 18-hole course known as
Lakey Hill, the East Dorset course was
founded by local farmers in the late 70’s
and sold in 1985 to a new owner, who
added a driving range with artificial grass
lanes, an additional nine hole pro shop. In 1989
the club was again sold, this time to the
Count and Countess Lerche from Den-
mark.

While recognizing what they had, the
Count and Countess clearly were not con-
tent to stick with their “vin ordinaire”
and immediately set into motion major de-
velopments which included the complete
reconstruction of the clubhouse, further
improvements to the shop complex, the
addition of a further nine holes and the
reconstruction of all 18 tees and greens on
the existing course. It was a major task,
one that would offer a real challenge
for Martin Hawtree to satisfy the Count
and Countess Lerche, who wanted three
loops of nine holes structured to an inter-
national championship standard while al-
lowing for equal competition between
men and women, as well as appealing to
players of all golfing abilities.

They were also keen to see the design
stimulate interest and surprise from be-
ginning to end on a landscape character
in keeping with the Dorset heathland situ-
ation. The course, they stated, also was to
provide the maximum year-round play
and as such was to cope with heavy rain-
fall.

Hired as consultant and architect,
Hawtree’s work was to expand and re-
model 21 holes. As “engineer” he was
further to design and see constructed six
additional holes.

The plaintiff claims that once the holes
— some of which had been turfed, others
seeded — had been put into play, the
condition of the putting greens steadily
deteriorated and continue to do so. This,
they claim, is due to the use of an unsuit-
able root-zone mix, with too high a pro-
portion of fine particles resulting in ex-
cessive water retention and very poor
drainage capabilities.

Hawtree, having engaged the Sports
Turf Research Institute (STRI) to advise
on the testing of several root zones and
approving the selected root-zone mix, has
brought them into the action by serving
them a Third Party Notice (analogous to a
writ), claiming that they (the STRI)
should indemnify Hawtree against the
allegations made by East Dorset Golf
Club, should the architect be found liabil-
ity.

In a report dated Jan. 17, 1990, the STRI
stated inter alia that... the existing greens
had been designed and built to a poor
standard and required complete recon-
struction, that the topsoil on the existing
greens was unsuitable and should be
stripped away, and that new greens
should be formed, using an imported and
very sandy growing medium mixture.

In June of the same year the STRI re-
ported to Hawtree on the various samples
as tested and concluded that the sample
identified would be entirely suitable for
use on its own as a golf green growing
medium, which would provide the ideal
growing medium.”

At a site meeting in July 1990 the mate-
rial recommended by STRI was consid-
ered, and it appears that the con-
tractor was constructed to commence
the importation of the said material.

Hawtree denies allegations of negli-
gence and breach of contract, while the
STRI admits no liability to Hawtree’s claim
“that they were in breach in failing to
advise that the root-zone mix recom-
manded was unsuitable and unfit for its
purpose.”

The Count and Countess Lerche have
gone on record as saying, “We wanted
the best, we ordered the best, we paid for
them, but the best was not delivered.”

The trial date was set for March 6, 1995.

Trevor Ledger Market Drayton Shropshire, England
GOLF COURSE NEWS

Radio-controlled irrigation systems
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Florida, I check with the water program
every day before I leave.”

“If you were in a watering situation where you were
dwatering every day, you could see how it might be
more awkward.”

RainBird last year introduced its radio-controlled program, the
Freedom system, which
reverts to all Maxi systems.

“The superintendent has the freedom
to run his irrigation system from anywhere
on the property,” said McWhirter.

“We both [Toro and RainBird] might
have a super standing there in the field on
his hand. The difference is, Freedom comes with
telephone connect, digital key pad and trans-
ciever. So you can program over the phone... The
super has access to the irrigation system with any touch-tone
telephone.”

RainBird’s COPPS system has
also won its share of converts.

“When COPPS, basically you have
a receiver that plugs into a single controller,” explained Jim
Hodge, superintendent at
VaHalla Golf Course in
Cumberland, Maine.

“Then you can operate any station with that one controller. I can still commu-
nicate with my crew via the same radio.”

“I like it a lot. I don’t use it a lot. I use it when I am a fertilizer and don’t have to stand
right there. I also use it when I’m doing repairs. Saves travel time running back and forth from the
controller.”

[Image of irrigation system]

[Image of irrigation system]

[Image of irrigation system]