Major capital, energy investments at stake in pump stations

By DAVID THRAIKILL and BILL SAVELLE

Course operators deal with restrictive resource, energy and environmental controls by immersing themselves in the new pumping system technologies.

"New water systems can represent a third of a new course budget. Systems decisions that were less than $300,000 before, are now approaching $1 million," says Dale Winchester, irrigation consultant for Palmer Course Design Company. "I know of more than one new course project that is 'dead in the water' because no one anticipated the cost to bring power to a poorly positioned pump station."

According to Gary Cozart, superintendent of Chardonnay Golf Club in Napa, Calif., "We're expecting water costs to double by '95. Energy and operating costs will not be far behind. Pump station design could make or break systems of the future."

No one expects the course owner and operator to become technical gurus, but a few decision-making guidelines may help avert disaster, or excessive system operating and maintenance costs later. "Most developers in the U.S. know the value of keeping everyone in the loop — from design through construction," says Erik Larsen, golf course architect for Palmer Design.

At Chardonnay an old site-built pumping station is still in operation on one of its two 18-hole courses, each on 160 acres. "I say old, but it was installed just five years ago," Gary says. "Ongoing maintenance costs running 40 to 50% higher than those from our new system which irrigates about the same acreage. The new Shakespeare course is controlled by a new station and the operating cost differential is marked because the new system irrigates an additional 70 acres of vineyards, too."

A good pumping system uses state-of-the-art technology to:
• reduce overall irrigation system wear and tear
• minimize maintenance
• slash energy use
• better handle alternative water sources
• accommodate future system expansion with minimal expense and effort.

Who benefits?

From an architect's perspective, "The ability to exactly specify performance to a given course need in advance, and to have it waiting on site when construction begins is a tremendous start-up timing advantage," according to Larsen.

"That way, work can begin from a pond, and the result, a quality in irrigation, can be blown out and

![For some, beautiful drives down the fairway occur long before the first tee time.](image_url)

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Course owner/operator pump station selection list

- Inlet Pressure
- Volts
- Phase
- HZ
- Mechanical Options: (Check Options Required)
  - Non Reverse Ratchets on Motors
  - Station Isolation Valve
  - INDIVIDUAL PUMP ISOLATION VALVES
  - System Relief Valve
  - Dual Backflush Pilot Assembly
- Wye Strainer, Automatic or Manual
- Can Filter Screen
- Lake Screen

- TYPE OF STATION
  - Vertical Turbine
  - Centrifugal
  - Variable Frequency Drive
  - Other:

- CAPACITY
  - Gallons Per Minute
  - PSIG (Discharge Pressure)
  - Wet Well Depth
  - Pump Extensions
  - Wet Well Diameter
  - Number Of Pumps
  - Ft. Water Lift
- INLET PRESSURE
  - Volts
  - Phase
  - HZ
- ELECTRICITY
  - Volts
  - Phase
  - HZ

- ELECTRICAL OPTIONS
  - Check Options Required
  - Non Reverse Ratchets on Motors
  - Station Isolation Valve
  - INDIVIDUAL PUMP ISOLATION VALVES
  - System Relief Valve
  - Dual Backflush Pilot Assembly
- Motor Fault Protection
  - Fuses Only
  - Fused Disconnect with Handle

- 3. Motor Fault Protection
- 4. Type of Starter (Required For Motors)
  - Across the Line, Full Voltage
  - Part Winding
  - Wye Delta
- 5. Safety Alarms
  - High System Pressure
  - Low System Pressure
  - Low Level
  - Low Suction Pressure
  - High Flow Rate
  - Pump Failure
  - Pump High Temperature
  - 6. Flow Meter and Totalizer
  - 7. Auxiliary Power Zone
  - 8. Station Lighting Package
  - 9. Remote Transfer Pump controls
- Feature 
  - 10. Building Heater
  - 11. Common Alarm Light: Remote or Station
  - 12. Computer Monitoring Package

Water quality report sheds important light

WASHINGTON, D.C. — The Council for Agricultural Science and Technology’s (CAST) report, “Water Quality: Agriculture’s Role,” presents information on agriculture and the nation’s water quality and provides a basis for diverse groups to come together and agree on policy measures to address current problems.

“This report should be read by all those on Capitol Hill who will be involved in the reauthorization of the Clean Water Act,” said The Fertilizer Institute President Gary D. Myers. “The report recognizes the complexity of water-quality problems and that solutions must be local and site-specific and must address many factors.”

The report, Myers said, demonstrates the strides made by agriculture in minimizing environmental impact.

There is one notable omission in the report. The chapter entitled “Risk/Benefit Considerations” contains no discussion of the benefits from agriculture.