

# Preparing irrigation systems for **WINTER**

## Pay attention to control valves, pump motors and heating and ventilation systems.

by Bob Scott

■ The items requiring the highest maintenance on irrigation systems are:

- 1) Pump station
- 2) Water source
- 3) Lightning protection
- 4) Automatic controls
- 5) Turf rotors

**Pump station**—This is the heart of your system, and is usually the most ignored because it's the most highly technical piece of equipment.

Eighty percent of pump station damage is due to your water source, and that's why I've given the source its own heading in this article.

If closed-coupled centrifugal pumps are maintained, the suction lift through the foot valve and intake line will give the most problems. Close examination is necessary, and if wear is noticed in the foot valve, screen or seal assembly, replacement may be necessary. (Replacement parts may be available for the foot valve, but it usually takes four to six weeks to get them from your supply company.)

The second problem item in closed-coupled pump stations and the first problem item in a turbine pump station is the main control valve.

The pilot control orifice on the main control valve can become clogged at the drop of a hat, if not properly screened.

The new pilot flush screen assemblies can minimize station miscalibration due to clogging. The other items on the pump station usually fall a distant third if maintenance has not been ignored.

The pump motors will need to be periodically lubricated. If high speed (3,600 rpm) motors are installed, expect to replace them every two to three years.

The pump shaft packing will need to be replaced at least once a year.

Mechanical seals of the pump shafts may have been installed; if so, examine excess leakage and adjust or replace if necessary.

The heating and ventilation of the pump station will need evaluation for automation and effectiveness. Proper water drainage for the pump station pad and motor packing will minimize undue moisture damage and control circuitry malfunctioning due to humidity. Painting the inside of the station will minimize air contamination to the electrical circuitry.

The pump station should be inspected by a professional service company. I would recommend a service contract for detailed preventive maintenance with a pump station firm.

**Water source**—Preventive maintenance on this component is usually done during the winter, before any freezes set in. The water source includes three main points:

- water quality and quantity;
- reservoir maintenance; and
- intake structure-screen, wet well intake and wet well.

Algae strikes fear in all of us, but it is best corrected at the source. Aeration, chemical application and even grass carp have been effective. State and federal control is affecting these approaches, so professional advice is necessary.

The increased demand for better year-round turf has caused lake levels to lower. This fluctuation causes suspended particles to infiltrate the system. Drilling wells or transfer pumps are recommended to maintain lake level control.

Reservoir maintenance should be an annual project. Clean up shore banks and open inlets to keep water flowing through the reservoir. The inlets need to be dredged for silt every year to prevent extensive and expensive dredging.

Inlet screens and the wet well must be checked. These screens are usually made of stainless steel, but different grades are affected differently by toxic water. The intake pipe and wet well need to be checked for deterioration and repaired. The wet well is also a point for silt accumulation that can be cleaned with a

sludge-type pump, rentable from any local rental company.

**Lightning**—It's a fact of life. Some type of protection can minimize damage, but manufacturers' recommendations should be observed. Arrestors and ground rod assemblies should be tested and repairs made when necessary. The difficulty with lightning damage is that when you think it's repaired, some other damage will be exposed.

The key: do not take lightning protection lightly!

**Automatic controls**—These should be maintained year-round. During the winter, all control panels should be checked and repaired. The motors, printed circuit boards and wire terminal blocks will show wear first.

The irrigation programming will need to be evaluated and adjusted for overwatering and pumping system inefficiencies. If computer controls are used, winter is an excellent time for updates and checking golf cart damage to pedestals and mounting pads. Check field wiring connections and note repaired points.

**Turf rotors**—In the fall, note the following:

- slow opening and closing;
- weeping;
- coverage/application;
- clogged nozzles;
- cover and case damage; and
- smooth operation.

After noting the defective rotors, proceed with a rotation repair program. Replace or repair 10 rotors at a time. Manufacturers usually have repair services if difficult problems occur. Check to see that the rotors are at ground level. Too high will cause mower damage, too low will prevent the open case from working properly.

—The author is an irrigation consultant in Conyers, Ga. This was reprinted from "Hole Notes," the publication of the Minnesota Golf Course Superintendents Association.