

## On the Waterfront

by Jim Reed

The last article from the study on "Designing, Operating, and Maintaining Piping Systems Using PVC Fittings" by Keller-Bliesner Engineering relates to maintaining surge control equipment and precautions in winterizing systems. Issues this spring that relate to maintenance or repairs on your irrigation system may be uncovered in this month's report. Hopefully, your system start-up will go smoothly.



### Maintaining Air Relief and Surge Control Equipment.

Automatic air relief and surge control equipment are only effective in limiting the magnitude of pressure surges when it is operating properly. In practice, it is not uncommon to find an irrigation system with a number of the air vents closed or inoperable. Air vents, pressure relief valves, pressure regulation valves and surge tanks should be inspected and serviced at least annually to assure that they are operating properly. The small orifices on continuous-acting air relief valves can become plugged and may need frequent periodic cleaning. As with any mechanical device, periodic maintenance is necessary to maintain reliable operation.

### Precautions in Winterizing the System

Systems that are not installed below the frost line must be drained during the winter. The most effective method of draining the system is to install the pipelines on grade with drain lines at the low points. However, with many golf systems, the common method of removing the water from the lines is with high pressure — high volume air compressors. The water is literally blown from the pipes. This method is used since it is far less expensive than laying the many thousands of feet of pipe to grade and installing drains.

There are some inherent dangers in using compressed air to "blow out" pipelines. Remembering the discussion of air-induced pressure surges in pipe lines, the risk of high pressure surges is great if the water and air become mixed, or air pockets form within areas that are not totally drained. The velocities created can be very high and the surge potential is equally high.

If compressed air must be used to evacuate pipelines, considerable care should be exercised. A high volume compressor should be used, but the output pressure should be limited to less than 50% of the system operating pressure. If a sufficient volume of air can be developed at lower pressure, so much the better. Valves should first be opened in the low points and at distal ends of lines to drain the larger diameter pipes and remove the majority of the water. Pressure should be limited to about 25% to 30% of the normal operating pressure during this phase. Once the major lines are evacuated, the close-in valves should be closed to allow evacuation of more distant segments. It will probably take two to three passes through the system, working from upstream to downstream to completely

(continued on page 13)

# MILLCREEK TOP DRESSERS

An Easy Way to Dispose  
of Grass Clippings...  
And Save Money



In one easy step, eliminate costly dumping fees and improve the rough by spreading grass clippings still enriched with precious fertilizer. Millcreek's Top Dressers are equipped with an adjustable undershot poly brush designed to evenly distribute top dressing from three to ten feet wide.

The spreading uses of these Top Dressers are endless:

- Fertilizer
- Sand
- Top Dressing
- Grass Clippings
- Seed
- Compost

Models are available with PTO or Engine Drive.

For More Information, please contact:

Avery Harris  
**LEWIS EQUIPMENT**  
(708) 537-6110

55 East Palatine Road  
Prospect Heights, IL 60070  
FAX (708) 537-5736

Distributor of:  
**MILLCREEK**  
TURF PRODUCTS

## PRECISION BLENDED TOP DRESSING

Custom blended to your specifications  
by our modern equipment.

*Buy when you need —  
Eliminate costly storage*

We sell an air-dried, uniform and  
free flowing top dressing.

*ASK THE MAN WHO HAS USED IT.*

## HENRY FRENZER

Area Code 708  
658-5303

620 Webster St.  
Algonquin, IL  
60102

(On the Waterfront continued)

evacuate the water from all lines. A pressure gauge should be installed on the pipeline near the compressor and monitored continuously during the operation. Pressure should be built up slowly to allow the water columns to begin moving gradually, avoiding any sudden pressure surges. If the line pressure gauge fluctuates dramatically, the air pressure should be reduced to lower the risk of pipe damage.

### SUMMARY

PVC piping offers many advantages over other types of piping, especially to the irrigation industry. If the systems are carefully designed, installed, and maintained, the piping will give years of satisfactory service. However, inadequate consideration of potential hydraulic situations, faulty installation, or improper operation can lead to significant problems, if not immediately, then at some time in the future. The cost of system failure is too great to ignore these potential problems, especially since moderate adjustments in system design can eliminate many of these problems. We hope that using the guidelines presented herein will aid designers and operators in meeting the rigorous demands placed on them. We also hope that additional performance testing can be accomplished on Schedule 40 and 80 fittings and that, ultimately, all PVC fittings can be pressure rated to eliminate the confusion that now exists in regard to their appropriate application.

# Great pythium protection. Great new formulation.



(We're listening to you.)

**RHONE POULENC AG COMPANY**  
P.O. Box 12014, 2 T. W. Alexander Drive  
Research Triangle Park, NC 27709  
919/549-2000