

# Midwest Breezes



## Burning Sulfur, Jeff Leonard, Chalet Hills Golf Club

We generally associate high pH and bicarbonates with water that is drawn from deep wells, but at Chalet Hills the ten-acre irrigation reservoir is fed entirely by surface water. It has tested as high as 8.9 pH, and the bicarbonates are also quite high.

For the 2006 golf season, Jeff Leonard used a sulfur burner to lower the pH of his irrigation water. The concept is fairly simple: elemental sulfur is loaded into a hopper which gravity feeds to a combustion chamber at the base of the unit. As the material burns, sulfur dioxide gas rises into an aspirator where the gas is scrubbed out of the air by irrigation water. The water which flows out of this process is a concentrated sulfurous acid solution in the range of 2.0 to 3.0 pH.

The discharge from the sulfur burner flows into Jeff's reservoir 20 feet away from the pump house intake line where it quickly dilutes. Jeff reports that the irrigation water is in a range of 6.0 pH. The sulfur burner does not provide the precise range of pH control that acid injection does, but for Jeff's purposes the concept has worked very well.

The black layer which had become a growing concern in his USGA greens is almost completely gone after only one season of using the sulfur burner. The overall health and color of Jeff's irrigated turf is noticeably improved. An unexpected benefit is the complete eradication of algae and several aquatic weeds in his irrigation reservoir. Jeff built a trailer for the sulfur burner so that it could be moved to other ponds on the property to clean up algae infestations. Apparently algae can not flourish in

non-alkaline waters; this might explain why the lakes in the north woods are generally so clean.

When the irrigation season began, Jeff connected the sulfur burner to the pump house. The unit ran all day every day until the end of the irrigation season. This year Jeff used 3 to 4 fifty-pound bags of elemental sulfur a day. By the end of the year Jeff used approximately 10 tons of material, at a cost of \$200/ton.

*Brad Anderson, CGCS*



*Elemental sulfur in its purest form.*



*Jeff's portable sulfur burner on wheels.*

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### Ivanhoe Club, Thom Prichard

On the seventh hole of the Prairie Nine, Thom has built one of the coolest tees that I have ever seen. It occupies the site of what was only recently an overgrown knoll adjacent to the teeing ground. One day Thom climbed up through the brush and realized that he had discovered a great spot for a tee. He brought his chairman up to look at it and he agreed that it should be a tee. There is a hand crafted stone stairwell leading up to it. This tee is used primarily for special events.

Another great idea that I noticed at Ivanhoe was the color-coded CDGA markers on each tee box. This eliminates any possible confusion as to where the tee blocks should be placed, or which tee you may be playing from.

The new Arthur Hills bunkers at Ivanhoe were designed with fairly steep turf slopes. The intent behind this design was for the golf ball to kick off these embankments and roll down into the flat sand interior. In some

places however, the ball is hanging up in the bluegrass embankments. In order for the ball to release into the sand, Thom has been forced to take the height of cut down. Lowering the height of cuts has helped the ball to fall as it was designed to on these slopes, but the health of the bluegrass has struggled, particularly the slopes with southern exposure. Thom is currently removing the existing turf and planting a variety of low-mow bluegrass that should perform better at providing a dense and healthy bunker embankment turf, allowing also for the ball to roll to the sand base.

In our 2007 Midwest Breezes installments, we will be revisiting Ivanhoe to report on Thom's aeration and topdressing practices at Ivanhoe Club.

Brad Anderson, CGCS



The two pictures above show the new tee found on a knoll by Thom on the Prairie number 7. The image on the right depicts the hand crafted stone steps leading to the tee.



From Left to Right: The steep sloping embankments with struggling bluegrass, a bunker with the slopes prepped for sod, and a completed bunker embankment planted with new low mow cultivars of Kentucky bluegrass.