

# Effluent: A Trojan Horse?

**L**ast summer, President Ray Hansen asked me to become involved with the South Florida Water Management District by leading a group representing golf courses on a committee that was drafting the water district's "policy document."

This document will be the blueprint for future water use. Each of Florida's five water districts will have a similar document drawn up by the end of the year.

My involvement with the committee and my experience in using effluent water for the past seven years has led me to some

specific conclusions on the merits and pitfalls of its use.

As a source of irrigation water, treated effluent has some plusses. Depending on its treatment level, it can contain a high degree of nitrogen; the water I have been getting from my local utility runs 20 milligrams per liter.

How much of this nitrogen actually gets to the turfgrass plant has not been established. The lab technicians of my local utility company estimate that 65 percent of the nitrogen is lost to volatilization during the process of dispersing it through the irrigation system.

Furthermore, the Florida Department of Environmental Regulation has set the maximum allowable limit of nitrogen in "irrigation quality effluent" at 10 mg/l.

If your turfgrass plants are getting 3.5 milligrams of nitrogen per liter of water from your irrigation system, they are not getting enough nitrogen from the irrigation to save you any money on your fertilization program. The benefit of this material as a source of nitrogen is minimal.

On the other side of the coin, effluent water does contain enough sodium to cause concern.

In the final process before entering the pipeline, the effluent must be treated by chlorine injection to kill the bacteria. We all agree this has to be done, especially since the water is to be sprayed in areas of public access.

But that process forces us to deal with sodium levels in the soil that are three or four times higher than they would be if we were using groundwater.

Excessive levels of sodium not only cause turf loss; they also reduce the efficiency of other chemicals and fertilizers. We end up spending more money without getting any increase in turf quality.

In a subtropical climate such as ours, heavy rainfall during some parts of the year will help flush the sodium out of the soil, but it builds up again during the dry seasons.

And sodium isn't my only concern.

Zinc, copper and boron are all quite abundant in treated effluent. After several years of using effluent on the JDM golf courses, these three heavy metals are approaching levels of toxicity to the turf.

Furthermore, since the pH of effluent generally ranges between 7.5 and 8.5, the pH of soil irrigated with effluent will gradually increase, creating another toxic situation for the turfgrass plant.

Whatever nitrogen benefits might be derived from effluent water are more than offset by the costs of dealing with sodium, heavy metals and soil alkalinity.

An even bigger issue is the loss of turf quality that is not so easily explained to the membership and could cost some people their positions.

And of course there is the bottom line: the cost of the material to the golf course.

The re-use of wastewater is one way for utility companies to get rid of their hazardous waste. Their present methods of deep-well injection and ocean outfalls have come under so much sharp criticism from environmentalists and water conservationists that DER and the water management districts have forced the utility companies to create re-use plans.

Basically, each utility company has two years to develop a plan to begin re-use within five years and have 100 percent re-use within 20 years.

Before its plan can be accepted, a company must have signed contracts with the end users, showing daily and yearly flow projections.

Their need for those contracts gives us some leverage.

The golf course operators in each utility service



Tom Benefield, CGCS

area should determine the fair market value of treated effluent before they begin negotiating with the utility companies.

Right now, utility companies typically pay about 40 cents per thousand gallons to build the infrastructure to dispose of their effluent. That's the maximum anyone should pay... but why should we pick up the whole tab for disposing of someone else's hazardous waste?

Collier County Utilities has one of the fairest arrangements: the golf courses on their contracts pay between 4 cents and 10 cents per thousand gallons — approximately what it would cost a golf course to operate a recharge well for irrigation.

Managers at Collier County Utilities maintain that the lion's share of the cost of disposal should be borne by the residential customer. He's the one flushing the toilet.

Forcing a golf course to pay more than the fair market value for treated effluent has the effect of placing a water tax on the only remaining greenbelt recharge areas of the urban environment.

What sense does that make?

Not only would golf courses be recharging the aquifer by re-using treated effluent, but they would be paying a tax for the right to provide this necessary community service!

The utility companies claim that the end-user should pay the whole cost of the material because the end-user is receiving the benefit.

What they don't mention is that peddling effluent to golf courses leaves more water in the aquifer for them to sell to an expanded service base.

A recycling solution utility companies won't even discuss is piping the effluent back to the residential customers who produced the material in the first place. Constructing those pipelines would cost the companies 10 times what it will cost to install lines to golf courses. And they would have no choice but to pass the cost on to the customers.

So even if the utility company absorbs the entire cost of building the pipelines to the golf courses, it is saving its customers 90 percent of the cost of the alternative.

Another reason utility companies will argue against sending treated effluent back to residential customers is that 50 percent of the potable water sold to homeowners is used for landscape irrigation. If the companies were to force residential customers to irrigate with treated effluent, they would be cutting their revenue from potable water sales in half.

So as we deal with this complicated issue over the next six months, here are some things to keep in mind:

- We are willing to make land that is worth hundreds of millions of dollars available for disposal of hazardous waste.
- We have pipelines, pump stations and sprinkler heads worth millions of dollars already in place.
- We in effect already have paid our fair share. Every dollar we have spent on land and infrastructure is one less dollar that John Q. Public will not have to shell out of his own pocket.

A representative of a utility company once told me, "We may have a moral obligation to re-use wastewater, but it is politically unfeasible to ask for rate hikes on sewer bills of residential customers to pay for it."

On another occasion, a member of the SFWMD board of governors told me that the attitude of elected officials about who should pay for something comes down to three solutions:

- A. Charge the rich and wealthy.
- B. Target special interest groups
- C. Charge the end user.

Our work is cut out for us. We must explain to the rule makers exactly how the golf industry fits into the water puzzle.

Even in the driest of years, we are net contributors to urban, shallow aquifers.

We have a positive story to tell.

We must get out and tell it.

*The man  
who  
flushes  
the toilet  
should  
have to  
help pay  
for  
disposing  
of the  
hazardous  
waste he  
creates.*



*We are dedicated to helping turf grass managers do their jobs more efficiently by striving to provide the best parts and service available*

DISTRIBUTOR FOR

**TORO CUSHMAN/RYAN OLATHE**

TORO IRRIGATION  
GREEN MACHINE  
BILLY GOAT  
POWER TRIM  
FOLEY  
MAIBO  
OHIO  
CROSLY TRAILERS

CUSHMAN INDUSTRIAL  
TRENCHMASTER  
OTTERBINE  
NATIONAL MOWERS  
BERNHARD EXPRESS DUAL  
CHEM-PRO SPRAYERS  
ALLEN HOVER MOWERS  
HAMMER RECYCLED PLASTICS

STANDARD  
PAR AIDE  
BROYHILL  
CYCLONE  
GANDY  
WINDMILL  
VICON

SALES MANAGER, Don DeLaney  
**(407) 333-3600**

**JACKSONVILLE**

1741 Hamilton St. 32210

**(904) 387-0516**

TERRITORY MANAGERS

Carl Heise  
John Higgins  
Bob Ward

**LAKE MARY**

300 Technology Park 32746

**(407) 333-3600**

TERRITORY MANAGERS

Phil Bradburn  
James Griffin