

## Selecting Wastewater Aeration for Lagoon Based on Maintenance Requirements, Efficiency, and Effectiveness

### Overview

Kendall County, IL – During the design phase of the Whitetail Ridge Golf Course wastewater facility, engineers evaluated multiple aeration technologies to establish the most suitable solution for their needs. Because the small, 6000 gallon per day single cell system lacked a full time dedicated staff, low maintenance was of utmost importance. The management of Whitetail also expressed the business value of efficiency and effectiveness—desiring to keep long term costs as low as possible. With these three qualities in mind, the engineers narrowed the decision down to two options: perforated fine bubble tubing and MARS Double Bubble™ Aeration.



*Whitetail cell awaiting MARS Aeration*

### Perforated Tubing

This aeration device is simply rubberized tubing with slits to allow for air to escape. While this tubing aerates efficiently, it comes at a cost of high maintenance. The tube is laid directly into bottom sludge, making it prone to clogging, and the only method of preventing this is to inject highly caustic acid into the tube on a weekly basis. In addition to being somewhat dangerous, this process requires labor that Whitetail does not have access to.

What's more, the effectiveness of perforated tubing is notably limited, as fine bubbles lack any real mixing capacity—especially in lagoons. With no opportunity to achieve the mixing necessary for proper treatment, sludge will eventually accumulate and require expensive future removal. After analyzing perforated tubing, the engineers determined that its maintenance requirements and low treatment effectiveness made it a poor fit for Whitetail.

### MARS Double Bubble™ Aeration

The MARS Aeration unit, with its patented Double Bubble™ technology, combines two essential components. The first, a self cleaning fine bubble membrane, efficiently oxygenates while the second, a coarse bubble pot aerator, provides the turbulence necessary to properly mix lagoon systems. Together, these components keep treatment costs low while still mixing effectively, avoiding high sludge removal costs in the future. A MARS Aeration system also does not require any regular maintenance, as each diffuser unit contains no moving parts. Also, to both minimize cleaning labor and extend the life of the unit, the MARS features self cleaning membranes positioned 16" above, not in, the bottom sludge.

With the MARS's high efficiency, minimal maintenance requirements, and proper treatment and effectiveness, it stood as the perfect aeration solution for the Whitetail Ridge Golf Course. The units have been performing exactly as expected since August, 2007—treating the sewage at a low energy cost while, with its low maintenance, allowing the staff to concentrate on their other duties.