

CASE STUDY #22

Client:	Harold Kuiper & Sons Dairy (850 Head of Cows)
Location:	Chandler, Arizona USA
Capacity:	Lagoon (1800 ft. L x 900 ft W x 18 ft. D) pH of lagoon was 7.7
Problem:	<ol style="list-style-type: none">1. Reduce odor.2. Reduce TSS so irrigation pumping costs and time can be reduced. (Current time taken to pump is 80 hours).
Previous Treatment:	20 HP submersible pump in lagoon.
Previous Results:	None. Thick manure mat & crust of 3 to 4 feet in-depth present. Odor of lagoon very bad.
Biological Treatment:	Bioaugmentation was begun by hand broadcasting 100 pounds of dry water soluble 30-10-10 fertilizer over surface of lagoon. 5 gallons of PDM-7 WTA was mixed with 50 gallons of water and sprayed on lagoon surface. Two 30 gallon drums of PDM-7 WTA were installed, one on each side of lagoon. Also installed were two 15-gallon drums of 20-20-20 water-soluble fertilizer on each side of lagoon. Using a gravity feed irrigation pump, PDM-7 WTA was added at a rate of 176 oz. per day. Fertilizer was added at a rate of 80 oz. per day. The adding of PDM-7 WTA and Fertilizer was continued for a 3-month period. The submersible pump was run for 4 hours every 3 rd day.
Biological Treatment Results:	After 15 days there was a noticeable difference in the lagoon's crust and in the odor (lack of). The lagoon was full of biological action with CO ₂ pockets bubbling up all around the lagoon. There was also surface evidence of the bottom of the lagoon breaking-up. After 30 days the lagoon had 60 to 70 percent open water. After 45 days the lagoon 90 percent open water, with small areas of dry solids and no odor.
Summary:	We consider this lagoon project to be a complete success. The purpose was to remove solids and reduce odors, which we did. After treatment, pumping of the lagoon was accomplished in 38 hours, less than half the time before treatment. Final analytical studies were not made available due to pumping of the lagoon for irrigation.