



# Worthwhile Operational Guidelines & Suggestions

BROILER PROCESSING TIMELY INFORMATION - APRIL 2002

## A DIFFERENT APPROACH TO WASTE TREATMENT

An interesting approach to plant wastewater treatment was described in a recent waste management meeting. The approach is developed by Ocean Arks International who emulates natural ecological systems in the design of the water treatment facilities. In a project for Tyson Foods in Berlin, Maryland, 12 restorers were arranged side by side to treat one million gallons per day of process wastewater. Textile baffles hanging below the 12 structures create a meandering flow pattern that maximizes wastewater movement through both plant root mass and treatment media (Pretreatment → Bacterial Augmentation → Anoxic Zone → Aerated Lagoon → Solids Settling Zone → Restorer Lagoon → Clarifier → Disinfection). This strategy draws on the strength and efficiency of natural ecologies.



The restorer can be used in wastewater treatment lagoons or ponds to reduce

BOD, total proteins, total suspended solids, and ammonia. A denitrification process can also be incorporated.



The linear serpentine pattern design is based on partially mixed aerated lagoon kinetics, fixed film reaction rates for biological surfaces and oxygen film transfer rates for subsurface fine bubble aeration. This provides higher reaction rates than facultative lagoons and is more energy efficient than complete mix aerated lagoons.

A two year payback with a \$60,000 annual energy savings is estimated for the Berlin plant.



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