Advancing Water Treatment With Responsible Innovation™

Case Study: Wastewater Lagoons, Diminishing Capacity

INTRODUCTION:

A wastewater lagoon system in the state of Arizona was originally designed to treat 800,000 gallons of wastewater per day. After about 10 years in use, the capacity of the lagoon was diminishing and they could only treat about 480,000 gallons per day – a 40% reduction in capacity. The actual influent flow averaged 565,000 gallons per day. The system was failing and the odors were becoming extreme.

INVESTIGATION:

The lagoon, which had an original depth of 5 feet, was found to have accumulated 2 feet of sludge. This accumulation directly correlates to the diminished capacity.

IMPLEMENTATION:

A two-pronged program was designed to first reduce the BOD loading before the wastewater reached the plant in order to lighten the biological and oxygen demand within the plant; then also reduce the sludge levels already existing in the plant.

Products put in use include:

- **United 756 LIFT-ZYME Wastewater Treatment for Sanitary Collection Systems** – To pre-digest grease and catalyze the breakdown of waste before reaching the plant.
- **United 984 LIBERATOR Bacterial Treatment –** To reduce BOD, organic solids and sludge before reaching the plant.
- **United 84 WWTP Freeze –Dried Bacteria with Enzyme Implant –** To directly dose the lagoons to reduce sludge levels by 30% – 60%.
- **United 893 KONVERT-A-ZYME Wastewater Control and Degassing Agent –** To reduce odors in both the collection systems and the lagoon.

RESULTS:

This program reduced the sludge level by 40%, raising the treatment capacity of the lagoon to 608,000 gallons per day. This provided capacity of an additional 43,000 gallons above their typical load, while eliminating discharge violations and the odor complaints.

CONCLUSION:

Working with United's wastewater specialists, this municipality was able to learn that not only is treating the direct area of concern beneficial, but adding treatment further upstream in the collection system, can often increase the benefit and provide more long term results.

Note: With new products being introduced since this study, the products recommended today might vary to include **United 890 SLUDGE SHARKS** to reduce the sludge in the lagoon, or if hydrocarbons are present, **United 981 LAGOON SHARKS**.