



*Advancing Water Treatment With  
Responsible Innovation™*

## **Case Study: Wastewater Treatment, BOD and TSS Reduction**

### **INTRODUCTION:**

A small town in Alabama requested help in determining how they could reduce their biochemical oxygen demand (BOD) and total suspended solids (TSS) to meet their discharge permit levels.

### **INVESTIGATION:**

The plant was originally designed to use Hythansis beds to remove the solids from the wastewater while allowing the water to be absorbed into the ground. The plant also has three 150,000 gallon aerated lagoons. The wastewater then passes into two long beds of plants that are meant to utilize the solids while allowing the water to be absorbed into the ground.

When the plant was built a soil test was not conducted to see if the ground could accept the volume of water (600,000 GPD). In fact, the plant was built on clay and the ground has never been able to accept the water. As a result, the plant was issued a special permit to discharge into a small stream. While the plant never ran properly, they were able to meet the discharge requirements most of the time.

Due to the aging of the plant and the buildup of sludge in the ponds with the plants, the suspended solids were not settling out and they then passed through the ponds into the receiving stream at a level that was higher than their permit allowed for the BOD and TSS.

### **IMPLEMENTATION:**

A program was designed to reduce the sludge layer, the BOD and TSS.

Products put in use include:

- **United 228 Flocculant Concentrate for Wastewater Treatment Facilities** – To provide more rapid settling of suspended solid particles in the water and improve effluent clarity.
- **United 484 BIO-MASS BUILDER for WWTP** – To boost the performance and biomass in ponds.
- **United 756 LIFT-ZYME Wastewater Treatment for Sanitary Collection Systems** – To catalyze the breakdown of waste and help control the organic buildup.

### **RESULTS:**

Working together the above products reduced the sludge layer in the lagoons, while continuing to promote better settling and breakdown of the solids, allowing permitted discharge levels to be met.

### **CONCLUSION:**

Although a plant may not be built to properly handle the flow coming through, a program with the right blend of bacteria, enzymes and other products can keep them operating more efficiently within the required limits. In smaller towns, where the plant staff does not have the knowledge to determine a plan of action, they can partner with United's Wastewater Specialists to identify the best solutions.



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