In early 2005, the city of The Colony, a suburb of Dallas, Texas, began major modifications to its Stewart Creek wastewater treatment plant to increase plant capacity and modify existing contact stabilization basins. The limitations of the existing process prevented the facility from consistently nitrifying. The plant needed to expand capacity by 33% from 3.4 million gallons per day (mgd) to 4.5 mgd. Additionally, it needed to nitrify year-round to below 3 mg/l.

After evaluating process alternatives, The Colony chose to implement Entex’s Integrated Fixed-Film Activated Sludge (IFAS), with a patented Webitat system within their existing basin volume. IFAS allows for an increase in biomass by maintaining the biomass in the basin through attachment to the IFAS media. The system includes a patented Webitat system to allow for additional air scour of the modules on a periodic basis.

The first train of 10 modules was installed and was returned to operation within 48 hours of initial draining. Improvement in treatment performance was immediate, and the plant was able to comply with ammonia discharge limits for the first time in its history. After a final conversion in 2006, the plant complied with all permit requirements. The city also saved over $2 million in construction costs by opting for Entex’s BioWeb™ media.

Entex’s advanced technologies brought BOD and TSS levels well below 10 mg/l and ammonia near non-detect levels, enabling The Colony to meet all permit requirements. The city also saved over $2 million in construction costs by choosing to modify and augment their existing basins with IFAS media.

The Colony City Engineer

“The Colony saved over $2,000,000 in aeration basin construction costs by choosing to modify and augment their existing basins with IFAS media.”

The Colony, TX

Effective Treatment, Small Footprint

A system expansion with never before seen effluent results
Technological Description

IFAS blends the process flexibility and advanced treatment benefits of activated sludge with the inherent stability and ease of operation of attached growth film systems, increasing capacity and/or level of treatment. Adding attached growth media to a suspended growth reactor provides additional stabilized biomass for increased treatment without increasing the clarifier solids loading. Media can be added to either aerobic and anoxic zones for kinetic optimization resulting in less tankage. BioWeb is a patented fabric developed in 1996 designed to maximize biomass growth comprised of high strength polyester filaments. It is designed to foster the growth of a healthy and thinly distributed biofilm, one of the most important aspects of an effective IFAS system.

Previous and Updated Aeration Basin Configurations

Design Parameters - Local Standards

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Influent (mg/L)</th>
<th>Effluent (mg/L)</th>
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<tbody>
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<td>10</td>
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<tr>
<td>TSS</td>
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Site Plan

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