

## EXECUTIVE SUMMARY

Testing of the Bio-Microbics MicroFAST® Model 0.5 was conducted under the provisions of NSF/ANSI Standard 245 for Wastewater Treatment Systems – Nitrogen Reduction (March 2007). NSF/ANSI Standard 245 was developed by the NSF Joint Committee on Wastewater Technology.

The performance evaluation was conducted at the NSF Wastewater Technology Test Facility located in Waco, Texas using wastewater diverted from the Waco municipal wastewater collection system, which serves predominantly residential development. The evaluation consisted of sixteen weeks of dosing at design flow, seven and one half weeks of stress testing and two and one half weeks of dosing at design flow. Dosing was initiated on August 14, 2006. After a three-week start up period, sample and data collection for the test was officially started on September 4, 2006. Sampling started in the fall and continued into the spring, covering a range of operating temperatures.

Over the course of the evaluation, the average influent total nitrogen was 38 mg/L. The Bio-Microbics MicroFAST® Model 0.5 produced an average effluent total nitrogen of 17 mg/L, which results in a 55% reduction in the incoming total nitrogen.

The Bio-Microbics MicroFAST® Model 0.5 is Certified as an NSF/ANSI Standard 40 Residential Wastewater Treatment System. The Model 0.5 Standard 40 evaluation produced an average effluent CBOD<sub>5</sub> of 3 mg/L, ranging between <2 and 8 mg/L, and an average effluent total suspended solids concentration of 5 mg/L, ranging between <2 mg/L and 29 mg/L. Their effluent successfully met the performance requirements established by NSF/ANSI Standard 40 for Class I effluent.

The maximum 7-day arithmetic mean was 4 mg/L for CBOD<sub>5</sub> and 14 mg/L for total suspended solids, both below the allowed maximums of 40 and 45 mg/L respectively. The maximum 30-day arithmetic mean was 4 mg/L for CBOD<sub>5</sub> and 11 mg/L for total suspended solids, both below the allowed maximums of 25 mg/L and 30 mg/L respectively. The effluent pH during the entire evaluation ranged between, 6.1 and 7.0, within the required range of 6.0 to 9.0. The Bio-Microbics MicroFAST® 0.5 met the requirements for noise levels (less than 60 dbA at a distance of 20 feet), color, threshold odor, oily film and foam.

Over the course of the Standard 245 evaluation the influent averaged 240 mg/L BOD<sub>5</sub>, 310 mg/L TSS, 38 mg/L total nitrogen, 290 mg/L alkalinity, a temperature of 27 °C and a median pH of 6.8, meeting the requirements of Standard 245. The effluent averages over the course of the test were 3 mg/L CBOD<sub>5</sub>, 4 mg/L TSS and 17 mg/L total nitrogen, representing a 55% reduction, and the effluent pH ranged between 6.8 and 7.0 SU. The effluent values met the requirements of the Standard.