Case Study
JEA Buckman Water Reclamation Facility
Jacksonville, FL

Equipment:	EcoFilter® EF1242
Odor Source:	WWTP Biosolids Disposal Building
Airflow:	15,500 cfm
Design Inlet H_2S Range:	average 150 ppmv, peak 200 ppmv
Actual Inlet H_2S Range:	100-225 ppmv
Avg. Outlet H_2S concentration:	< 0.01 ppmv
Design H_2S Removal Efficiency:	99%
Actual H_2S Removal Efficiency:	99.99+%

JEA's Buckman Water Reclamation Facility is located in a densely-populated urban neighborhood in central Jacksonville, FL, making odor control a prime focus of its operations. The odorous air collected from its Biosolids Disposal Building contains a high concentration of H_2S. JEA sought to replace the chemical scrubber with a technology that was cost effective from both a capital and operating cost perspective, without the need for chemicals. In addition, a minimum footprint was needed to conserve space for other processes.

A BioAir EcoFilter EF1242 system was chosen to treat these highly-concentrated emissions. Installed and activated in 2011, the EcoFilter reactor vessel treats all 15,500 cfm of odorous air from this building. The graph below presents the operating data for this system for a typical one-week period. The design specification allowed for a minimum Empty Bed Residence Time (EBRT) of 6.0 seconds. BioAir's EF1242 reactor volume provides a 6.5 second EBRT. The graph identifies the 99.0% specification requirement for H_2S removal, as well as the actual performance data for the EcoFilter at both the midpoint and outlet elevations of the reactor. The data demonstrates that the 99% minimum performance requirement is significantly exceeded at both elevations. At the midpoint of the reactor, the average H_2S removal is 99.8% in only 3.3 seconds EBRT and the average removal exceeds 99.99% at the reactor outlet.

The EcoFilter has satisfied each of the goals for this installation. The removal performance requirement has been significantly exceeded, even at the mid-point of the reactor. This allows for a comfortable performance safety margin. Because the EcoFilter does not require costly and dangerous chemicals, operating costs are minimal and personnel safety risks are eliminated. The EcoFilter's automated controls essentially eliminate operator involvement, reducing operation of the system to a simple maintenance overview function. And at only 12 feet diameter, the footprint for this biological treatment solution is minimal, actually fitting within the same space as the chemical scrubber it replaced. The EcoFilter has demonstrated a "new state of the art" in biotrickling filter process performance, stability, and reliability.