

# **Civil Engineering Seminar**

## **Treatment of Graywater and Waste Gas Using a Biofilm Reactor**

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**Day: Wednesday April 7, 2010**

**Time: 4:00 to 5:00 pm**

**Place: 1052 Rathbone Hall**



### **Abstract:**

Biological trickling filter reactors were designed and operated for graywater and waste gas treatment. In an initial evaluation, after a reactor startup phase of 40 days, the average contaminant removal for six replicate reactors was 65%. A second set of experiments was conducted to assess contaminant removal using several types of packing material. Recirculation rates were varied and effects on contaminant removal were tracked. Characterization of the reactor effluent was conducted to determine if the observed plateau in contaminant removal was a result of mass transfer limitations from inefficient lateral dispersion of water through the packing material. Biofilm characteristics also were evaluated using microbial and chemical assessments. Results indicate that there was significant simultaneous degradation of liquid and gas phase contaminants during operation of the biofilm reactor.

### **Short Bio:**

Dr. M. Katherine Banks is the Bowen Engineering Head and Professor of Civil Engineering at Purdue University. Dr. Banks' research focus is in the area of applied biological waste treatment processes. She received her BSE from the University of Florida in 1982, MSE from the University of North Carolina in 1985, and PhD in Civil and Environmental Engineering from Duke University in 1989. She was Assistant and Associate Professor of Civil Engineering at Kansas State University from 1989 until 1997, when she joined the faculty of Purdue's School of Civil Engineering.

Dr. Banks is the author or co-author of over 125 journal articles, proceedings papers, book chapters, and reports. She served as Editor-in-Chief for the ASCE Journal of Environmental Engineering, Associate Editor of the International Journal of Phytoremediation, and is on the Editorial Board of the Journal of Environmental Science and Health. Dr. Banks is a Fellow of the American Society of Civil Engineers, and a member of Chi Epsilon, Sigma Xi, Water Environment Federation, and the Association of Environmental Engineering and Science Professors. Dr. Banks is a licensed professional civil engineer in Indiana and Kansas.