Time & Location: March 21, 2014 at 2:00 PM in Engineering-1 288
Title: The Effects of Biosorption Media on Phosphorus Removal in Stormwater

To maintain the quality of receiving water bodies, it is desirable to remove total phosphorus (TP) in stormwater runoff. Many media filtration technologies have been developed to achieve TP and soluble reactive phosphorus (SRP) removal. Efficient media adsorption is essential to insure control of stormwater phosphorus inputs to receiving water body. This project develops and analyzes a functionalized Biosorption Media (BAM) to remove phosphorus species from stormwater runoff. One goal of this project is to find the BAM values for coefficients such as maximum adsorption capacity (QM) for the media through SRP isotherm equilibrium experiments using the Langmuir and Freundlich models. In addition, an up-flow column experiment was also performed to study BAM nutrient removal from stormwater runoff. Finally, the information from the isotherm and the column experiments are used to estimate the life expectancy or quantity required of the media, and to define the effectiveness of BAM in phosphorus removal. The result of this study shows that BAM is a feasible stormwater treatment that can remove 60% SRP and >40% TP. The media is adequately modeled by both the Langmuir and the Freundlich models over the concentration range of interest in stormwater.

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Approved for distribution by Andrew A. Randall, Committee Chair, on February 15, 2014.

The public is welcome to attend.