



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2002NC3B

Title: A Systematic Evaluation of Polyacrylamide for Sediment and Turbidity Control

Project Type: Research

Focus Categories: Non Point Pollution, Surface Water, Water Quality

Keywords: Soil erosion, runoff, suspended sediments

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Matching Funds: \$37652.00

Congressional District: 4th

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Abstract: Polyacrylamide (PAM) has been proven to reduce erosion and turbidity under agricultural conditions. Our current laboratory and field tests have shown that PAM can also substantially reduce turbidity in sediment basins and traps, even to or near the current 50 NTU standard. Under the current WRRRI grant, we are determining a number of factors involved in maximizing PAM effectiveness: sediment trap modifications, electrolyte interactions, and environmental conditions. These are primarily using the log format to introduce PAM into runoff. However, there are many other methods to introduce PAM into runoff which may be more reliable and effective. Further testing on these is needed to determine the optimal configuration for reducing turbidity. That PAM can be effective in reducing turbidity is not a question. Designing systems to ensure that PAM will be effective under typical construction site conditions is needed, however. Although not widely used yet, the approach currently available is primarily using PAM logs to dispense the material into the runoff stream and then use various filtering and settling systems to remove the flocs. We are currently working to determine the optimal conditions for this approach. There are many other systems in development or in early marketing which may prove to be more reliable or better adapted to different situations than the log. These include metering in emulsions or solutions using pumps powered by runoff flow, using corrugated pipe to both dispense and mix solid PAM, and sprinkling PAM on natural fiber channel liners and baffles. Two post

treatment systems have also been introduced to remove flocs: a fiber-lined bag and a sand filtration unit. The work we propose will provide information to expand the current application of PAM to reduce turbidity in construction site runoff. This is expected to add flexibility and reliability to the use of PAM in these applications.

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