



## WATER RESOURCES RESEARCH GRANT PROPOSAL

**Project ID:** 2003WV16B

**Title:** WRI54: Passive Treatment of Cl Contaminated Waters in NW West Virginia Using Passive Absorptive Technologies

**Project Type:** Research

**Focus Categories:** Water Quality

**Keywords:** aquatic ecosystem integrity, chloride absorption

**Start Date:** 03/01/2003

**End Date:** 02/28/2004

**Federal Funds:** \$12384.00

**Matching Funds:** \$24769.00

**Congressional District:** WV 1st

**Principal Investigators:** Guetzloff, Thomas; Ziemkiewicz, Paul F (WV Water Research Institute)

**Abstract:** In West Virginia there currently exists no state specific surface water quality limit for chloride. The limit currently on record for chloride, 230 mg/L, comes from federal water quality standards and are currently not heavily regulated within the state. However, the WV Division of Environmental Protection has recently been discussing monitoring chloride concentrations in discharge waters and enforcing existing chloride limits. Chloride concentrations have been detected at greater than 1000 mg/L (over 5 times the current standard) in several underground mine discharges in northern West Virginia. This will require many operators in this region to continually treat for chloride removal. Unfortunately, passive treatment technologies do not exist to address chloride removal from contaminated waters. The only alternative for operators is to construct and maintain expensive active treatment facilities to remove chloride. In addition, since chloride limits have not been enforced in the past, there has been little research on passive treatment of chloride contaminated waters. The result is that little is known about the potential for and effectiveness of passive chloride treatment systems.

The objective of this project is to have a better understanding of the absorptiv potential of various materials, including acidified acid mine drainage (AMD) sludge, on anionic species present in AMD. Of

particular interest is chloride and its affinity for sorption sites. Also of interest is sulfate. The results of this project can then be used to make recommendations for Cl removal in the field.

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