WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: WI81

Title: Removal of As(III) and As(V) in Contaminated Ground Water with Thin-Film Microporous Oxide Adsorbents

Focus Categories: Groundwater, Treatment

Keywords: hydrogeochemistry, groundwater, treatment

Start Date: 03/01/2001

End Date: 02/28/2002

Federal Funds: $20,758

Non-Federal Matching Funds: $26,562

Congressional District: Wisconsin 2nd

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Abstract

Elevated concentrations of arsenic in ground waters used for irrigation, human consumption and industrial activity are an epidemiological problem, particularly in India and Bangladesh. Even in Wisconsin, wells monitored by the Department of Natural Resources show arsenic exceeding the enforcement standard in 50 samples and the preventive limit in 204 cases. The primary objectives of this project is to develop microporous oxide-based adsorbents for removing both As(III) and As(V). The materials could be used for stand-alone column treatment or added to sand filters to enhance arsenic removal. High surface area microporous oxides can then be modified to adsorb both As species in water supply systems. These materials can be used as thin film coatings on various supports or added to sand columns to enhance arsenic removal in water treatment facilities. This latter procedure potentially offers a cost-effective treatment strategy for non-compliant municipal as well as individual water supply systems