



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2003DC42B

Title: Speciation of Triorganotins in Sediments of the Anacostia and Potomac River Sediments as the Result of their Interaction with Bacteria

Project Type: Research

Focus Categories: Toxic Substances, Water Quality, Sediments

Keywords: tributyltin, triphenyltin, sediments, clays, bacteria, pollution, mossbauer spectroscopy

Start Date: 03/01/2003

End Date: 02/28/2004

Federal Funds: \$ 8612.00

Matching Funds: \$17224.00

Congressional District: District of Columbia

Principal Investigators: Eng, George

Abstract: The overall objectives of this research program are to investigate the environmental speciation of triorganotin compounds in river sediments as a result of their interactions with bacteria. The river sediments will be from DC waterways, such as the Anacostia and Potomac rivers. Speciation of triorganotins is of major concern due to their species-specific toxicity. The compounds to be studied will be those that are known to be the active ingredient in marine paints. The two most commonly used classes of triorganotin compounds are the tributyl- and triphenyltins. The aquatic medium to be investigated will be sediments since they are a sink for the triorganotins where interaction with the various sediments/bacteria occurs. The species that are produced as a result of these interactions will be determined using Mössbauer spectroscopy. The results from this study will provide individuals and/or government agencies interested in water quality and planning of the Anacostia and Potomac rivers with knowledge of the fate of these triorganotins once they are leached into these rivers. This information will enable those making decisions about the water quality to better assess the long term impact of these chemicals on the aquatic environment. In addition, understanding the long term environmental effects of these compounds, particularly on the fish population in the Anacostia and Potomac rivers, is critical since many of the fish taken from these rivers are consumed. Consuming large amounts of these fish could

have an adverse impact on the health of individuals since triorganotins are known to have mammalian toxicities.

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