



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2002NJ6B

Title: Anaerobic biodegradation of MTBE under different anoxic conditions

Project Type: Research

Focus Categories: Treatment, Toxic Substances, Groundwater

Keywords: Methyl tertiary butyl ether, MTBE, groundwater, contamination, biodegradation, anaerobic, oxygenates, sulfidogenic, estuarine sediment, microbial community

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Federal Funds: \$4,000

Non-Federal Matching Funds: \$17,770

Congressional District: 6th

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Abstract

The overall objective of the study is to investigate anaerobic MTBE-biodegradation processes, focusing on the microbial community structure of MTBE-degrading enriched cultures. In recent work we have obtained anaerobic enrichment cultures which are capable of biotransforming MTBE to TBA under sulfidogenic conditions. The work in this proposed study will examine the ability of the enrichment cultures to degrade other ether compounds in relation to the side-chain structures that might affect the activities. Moreover, this proposed study will characterize the microbial community structure of these enriched cultures using molecular approaches in order to understand their role in MTBE-degrading ability. In addition, anaerobic microcosms will be set up from various environments under different electron acceptor conditions to investigate how widely distributed indigenous microorganisms capable of degrading MTBE and structurally related fuel oxygenates are in the environment and to determine the effects of alternate electron acceptors on biodegradation.