



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2002NJ4B

Title: Continuous, On-Line Monitoring of Haloacetic Acids in Water Using Analytical Membrane Extraction

Project Type: Research

Focus Categories: Methods, Water Quality, Non Point Pollution

Keywords: membrane separation, disinfection by-products, DBPs, HAAs, haloacetic acids, trichloroacetic acid, dichloroacetic acid, carcinogen, online monitoring, diazomethane, supported liquid membrane extraction, SLM, microporous membrane extraction, MME

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Non-Federal Matching Funds: \$24,118

Congressional District: 10th

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Abstract

Halogenated compounds generated by the reaction of chlorine with Natural Organic Matter in source water have been identified in chlorinated drinking water as toxic disinfection by-products (DBPs). Health and environmental effects of haloacetic acids (HAAs) have been increasingly recognized; HAAs are toxic to humans, plants, and particularly to algae, and some are classified as carcinogens or potential carcinogens.

All the existing methods for HAA analysis are only suitable for laboratory analysis of discrete samples; no instrument is available for on-line, continuous monitoring and some of the HAAs are subject to degradation and should be analyzed as quickly as possible. On-line monitoring can provide real-time data and eliminate errors due to analyte loss and cross-contamination during sampling, sample transport, and storage. This is especially important given the instability of some HAAs.

The objective of this study is to develop methods/instrumentation for automated, on-line analysis of haloacetic acids in drinking water, water resources, and wastewater, with significant saving in time, labor and money. The instruments will be able to carry out continuous, real-time monitoring with high selectivity and sensitivity, and minimize the use of toxic solvents in sample preparation.