



WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2003MD28B

Title: Fate of Alkylphenolic Compounds in Wastewater Treatment

Project Type: Research

Focus Categories: Toxic Substances, Waste Water, Water Quality

Keywords: endocrine disrupters, nonylphenol, hormones, emerging organic pollutants, wastewater treatment

Start Date: 03/01/2003

End Date: 02/28/2005

Federal Funds: \$27,520

Non-Federal Matching Funds: \$55,166

Congressional District: 5th District of Maryland

Principal Investigators:

Alba Torrents

Clifford Paul Rice

Abstract

The main goal of the present project is to model the distribution and fate of alkylphenol ethoxylates (APnEOs) and their degradates alkylphenols (APs) in a sub-estuary of the Chesapeake Bay and two waste water treatment plants (WWTPs) and to determine the operating parameters in the plants that control the concentrations of these endocrine-active substances in the estuary.

Our working hypothesis is that we could assess the possible accumulation and impact of APs in the environment if we improve our understanding of their fate and distribution in WWTPs and receiving waters. The specific research objectives of the project are to:

- a) Characterize the typical pattern of APs discharge from two WWTPs, Back River WWTP on Back River and Blue Plains on the Potomac.
- b) Construct a model to identify the main processes involved to describe the distribution and fate of these APs in the receiving waters. At the extent possible, compare model output to field data, refine model and validate against independent datasets at the extent that such data becomes available.

- c) Compare and contrast the two WWTP systems in order to relate operating parameters with discharge patterns and offer remediation options for reductions in discharge.
- d) Use the model to determine potential exposure of aquatic biota to these compounds.