USGS

WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2004TX147B

Title: Removal of Hormones through a Conventional Wastewater Treatment System

Project Type: Research

Focus Categories: Non Point Pollution, Treatment, Water Quality

Keywords: hormones, water and wastewater treatment, water quality

Start Date: 03/01/2004

End Date: 02/28/2005

Federal Funds: $5,000

Non-Federal Matching Funds: $10,157

Congressional District: 32nd

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Abstract

This project will focus on investigating the extent that four endocrine-disrupting chemicals –or EDCs two types of estradiol, progesterone, and testosterone—are present in the City of Dallas wastewater treatment system. One of these compounds, ethinylestradiol, is incorporated into many oral contraceptives, while the other contaminants may be naturally occurring. EDCs are an emerging, high priority research area, since these contaminants have the potential to affect the health of both humans and aquatic species.

Some of the objectives of this study are to assess the levels of these EDCs in domestic wastewater in the Dallas area and to determine the extent to which these contaminants may be present in various stages of a wastewater treatment plant (for example, sedimentation, activated sludge, disinfection, and filtration). Using data gathered throughout this project, a model will be developed to estimate the fate and transport of EDCs in receiving waters. This information can be used to recommend operating strategies to better treat and remove these pollutants.

The research will involve collecting samples from the Dallas Central Wastewater Treatment Plant, screening for hormones in collected water samples, determining the rate of decay for these EDCs, and comparing levels of hormones from bench-scale studies at SMU with data from the Dallas Central plant.

This study builds upon a larger grant provided by the U.S. Environmental Protection Agency to investigate these issues. Results from this study should provide insights into the extent to which endocrine-disrupting chemicals may pose a potential pollution concern throughout Texas and the region.